

US policy worries the UK

THE US Defence Department's clamp down on exports of technology is being viewed with growing apprehension on both sides of the Atlantic. Computer industry leaders fear political changes may stem the flow of ideas between firms and research institutes, and prevent fruitful collaboration on innovative projects.

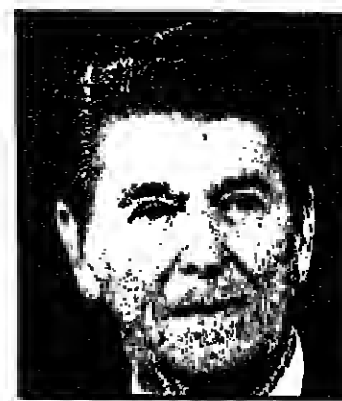
The Reagan administration's recent hawkish pronouncements have served to fuel the worry that the quest to keep the free world free would mean putting on an economic and intellectual straitjacket. The US government's permanent preoccupation with nuclear missiles in Eastern Europe is now accompanied by an increasing obsession with "the fire in its backside" - Central America - and a perceptible shift from the free trade philosophy towards protectionism in economic policy.

These three factors lie behind continuing discussions in Congress to draft a new law on export restrictions to succeed the current one which expires on September 30.

Traditionally, review of export licences is a Commerce Department domain, with Defence looking over its shoulder. But now the Pentagon is demanding a bigger say, with power of veto over proposed sales of computers, microprocessors and associated products.

A Commerce Department spokesman in Washington told *Computer Weekly*: "They want to extend their right to monitor exports and to establish a right to stop the selling abroad of sensitive products which they think could aid an enemy."

He added: "But this department wants to keep the status quo. And



REAGAN... Hawkish.

the Pentagon is still far from having won the argument."

In 1981 there were about 64,000 licence applications to nations friendly to the US and some 8,000 to the Communist world, of which the Defence Department looks at one-third through COCOM, the NATO co-ordinating committee.

COCOM (the Co-ordinating Committee for Exports to Communist Areas) is in session in Paris at the moment, considering its future policy. In the past Defence has had no right to oversee any sales to non-Communist countries.

Jack Hartley, president of the giant Harris Corporation, told a US chamber of commerce luncheon in London last week that he viewed developments with some concern.

"I believe there has been an over-reaction," he said. "The clampdown proposed is beyond what is realistic and will bring changes in US trading practices."

But he still felt the administration would probably see sense and not "do stupid things".

The British Embassy in Washington has been orchestrating a gigantic campaign, with international backing, to influence Congress opinion; but a Trade Department spokesman in London said they had so far had little success.

The US wanted to extend its laws into other countries and interfere with their economies, he said.

DoI gives new export boost

by John Kavanagh

NEW government backing for UK computing exports is about to be announced by the Department of Industry. The department is setting up a permanent export council following the success of the pilot ExportIT scheme.

ExportIT was set up at the end of 1981 as part of Information Technology Year. It was funded to the tune of £250,000. During the year it backed trading missions for UK firms to the US, Japan, Singapore and the Middle East and brought potential overseas buyers to the UK.

The venture gave UK firms overseas contacts representing business totalling £10 million. The mission to the Comdex exhibition in the US gave the companies taking part some 220 good enquiries.

The department says the future of ExportIT has been reviewed but no decision has been reached. But it is understood that a government agency is already looking for a director for the council.

Loud criticism of government support for the information technology industry was put to the Parliamentary Information Technology Committee in February by Selcom managing director Warren Werblow.

"As a country we haven't really made much headway in recent years in software exports," he told MPs. "British software has a deserved reputation for quality but can we really say we've capitalised on this, with exports running at £50 million and a home market of about £1 billion?"

Donald Moore, ExportIT chairman, added that some areas of the industry itself were not giving enough backing to export ventures.

The government seems to have taken note of these and other criticisms. This week Computing Services Association director general Douglas Bycious welcomed the government's latest moves. But he hoped there would be more money.

"The information technology industry has very wide scope and £250,000 will not go far," he said. "If that amount was concentrated on software it would be a good sum."

Bycious added that the government had a clear role to play in supporting exports. That support need not take the form of financial backing. It could come in the form of encouragement, contacts and reference sales, he said.



WERBLOW... His advice was headed.

No contest plea made in secrets case

THE last defendant in the criminal case charging 14 Hitachi employees with stealing IBM secrets has pleaded "no contest". The plea was accepted by a federal judge in San Jose, California, against the objections of the prosecution.

The plea is similar to a guilty plea but cannot be used as evidence in a civil case. The judge has ordered the full trial transcripts to be released.

System 36 launch

IBM's long awaited System 36 small business system was released this week at the National Computer Conference in Anaheim, and is set to supersede the ageing System 34. It gives increased performance at lower price while readily running the bulk of System 34 application software plus extensive new menu driven office and text management programs. System 36 is scheduled for UK deliveries in September. Prices will run from £14,000 to £41,000.

£464,000 research

ICL and the Science and Engineering Research Council are putting £464,681 into a research project aimed at increasing programmer productivity. This year's Wilkes prize from the British Computer Society went to work with a similar aim. See story on page 2.

NCR mainframes

NCR launched a battery of seven new mainframes in its V8600 series at the NCC exhibition on Anaheim. Their performance spans the range covered by IBM's 4341-11 to 3038J mainframes. A spokesman for NCR UK said that there is no date for their UK appearance.

Computing survives world's recession

by John Kavanagh

THE computing industry is emerging as one of the few strong survivors of the world recession.

Computing firms are racing up the league tables of sales, profit and market value while other industries, especially oil, are struggling, according to tables in the top 500 US companies in *Forbes* business magazine.

IBM has taken over from American Telephone and Telegraph at the top of the market value league with a 72.1% increase. AT&T and IBM are first

and second in the profits table. And AT&T is second and IBM seventh in the sales league.

In all these tables most of the other top 10 companies - mainly in the oil business - show considerable decline.

Further down the tables computer firms have made big leaps ahead from last year's positions. The only exceptions are the big mainframe manufacturers, notably Sperry, Control Data, Honeywell and Burroughs, which show marginal increases.

But minicomputer specialists

Hewlett-Packard and Digital Equipment jump by up to 50 places in the tables. Hewlett-Packard, which does half its business in computers, is number 15 in the market value table, 136 in the profit league and 54 in the profit list. DEC's positions are 28, 155 and 46.

Office automation specialist Wang Laboratories comes into the top 500 in terms of sales at number 473. The company continues to capture the imagination of the US stock market: its market value is up by 86.9% to put it at 53.

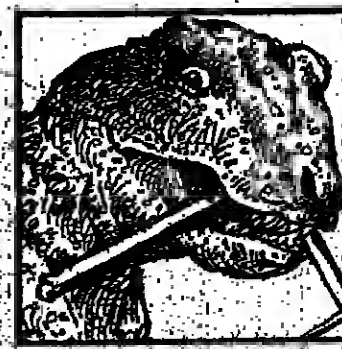
Microcomputer firms also do well. Tandy and Apple leap by 50 places in two of the tables.

The industry's performance is one bright point in a year described by *Forbes* magazine as "the trough of a mighty breaker, the low point in a decade of stress and some serious declines".

Forbes notes that next year AT&T will be out of the top rankings after years as "the perennial champion of the 500s". This follows a ruling ordering the regional telephone companies to be hived off as separate firms.



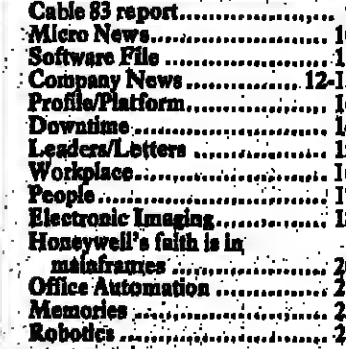
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CAFS delay costs ICL £32m order

by Andrew Thomas
ICL's failure to deliver a VME version of CAFS has lost it another order - this time worth £32 million.

ICL was in the running for the computerisation of British Telecom's directory enquiry service, and was widely regarded as a strong competitor, but ICL's inability to ship the 2900 version of CAFS, CAFS-ISP, resulted in the deal going to telecommunications giant STC.

A pilot scheme carried out by British Telecom four years ago used the CAFS 800 system to handle enquiries on six million subscribers and gave an average response time of less than two seconds. But CAFS 800 only ran with 1900 range operating systems, and BT is committed to VME 2900.

CAFS-ISP is scheduled for first deliveries in the summer, but BT insisted on a demonstration, last year, when ICL did not have a working system. IBM and DEC also tendered for the deal, but DEC at least has the consolation of supplying the 60 FDP-11/44 minis which will run the system.

Although the order goes to UK-based STC, the technology involved comes from the US Computer Consoles Inc, of New York, developed the enquiry system as long ago as 1976.

The system will start operations next year, covering the whole of the UK by 1986. In all 4,000 terminals will be installed, and BT claims that the average handling time for a directory enquiry will be reduced from 52 seconds to 40 seconds.

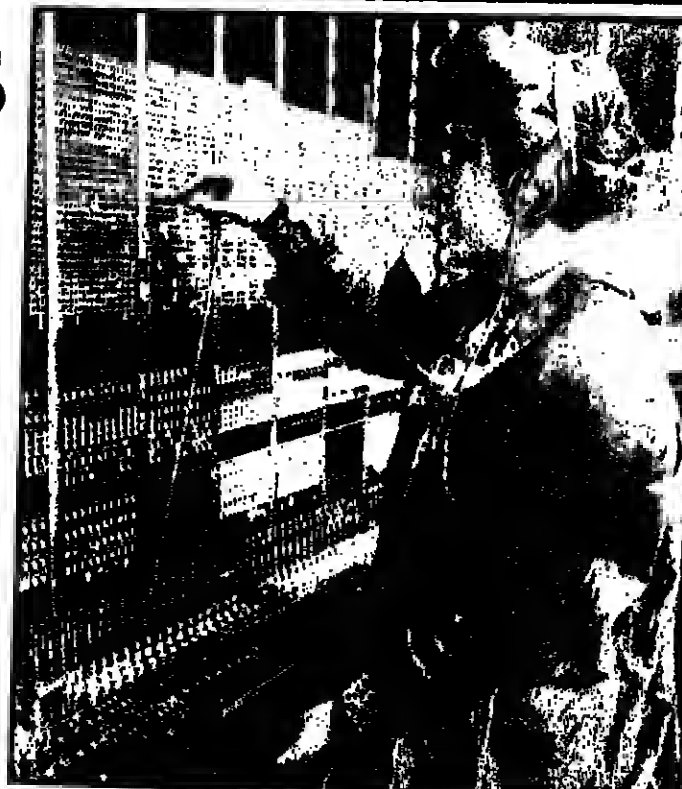
BT also intends to reduce the

number of directory enquiry operators from the present level of 10,000 to 7,500 by natural wastage. Little consideration appears to have been paid to the fact that the longest delay encountered by subscribers is not the time taken for an operator to look up a number, but the time taken for them to answer the phone. The reduction in the number of operators can only exacerbate this.

In January, ICL lost two orders from the BBC as a direct result of the non-availability of CAFS-ISP. One was for a database of newspaper cuttings. The other - a directory enquiry service.

ICL refused to speculate on how many other orders had been lost due to the long gestation period of CAFS-ISP, or to comment on whether CAFS would have outperformed the STC proposal.

STC also intends to reduce the



Ancient and modern - and a far cry from the less-than-two-seconds response time offered by CAFS.

Parallel processing work wins BCS award

by John Kavanagh

WORK aimed at giving programmers control over the way their programs are executed and linking computers for parallel processing has won national recognition for Newcastle University.

The work, which could affect basic computer design, has won for the project team the British Computer Society's Wilkes Award.

The team is working on linking ICL Perq scientific microcomputers for parallel processing. It has also designed its own microelectronic processing elements which will be built at one of the Science and Engineering Research Council's chip fabrication plants.

The council has backed the Newcastle work for three years and is expected to renew the funding for the next three years.

The award has gone to Dr Paul Rautenbach, who was at Newcastle and then worked on artificial intelligence at Brunel University before joining Standard Telecommunications Laboratories' Microprocessor Technology Centre.

The others in the team, who are continuing the work at Newcastle, are Dr Philip Treleven and Richard Hopkins.

"The work involved looking at how processing power should be organised to handle a computation," said Rautenbach.

"This is fundamental to what computing is about. It involves the organisation of distributed and parallel processing elements. The next step is to design a machine to put these ideas into practice."

Rautenbach said the work had attracted interest from the industry.

And the Wilkes Award judges, including top industry and academic figures, said the work "will affect how computers will be designed in future."

The award was introduced three years ago to mark the retirement of a UK computing pioneer, Professor Maurice Wilkes of Cambridge University.

Japan giants in £9 million systems house link-up

by John Kavanagh

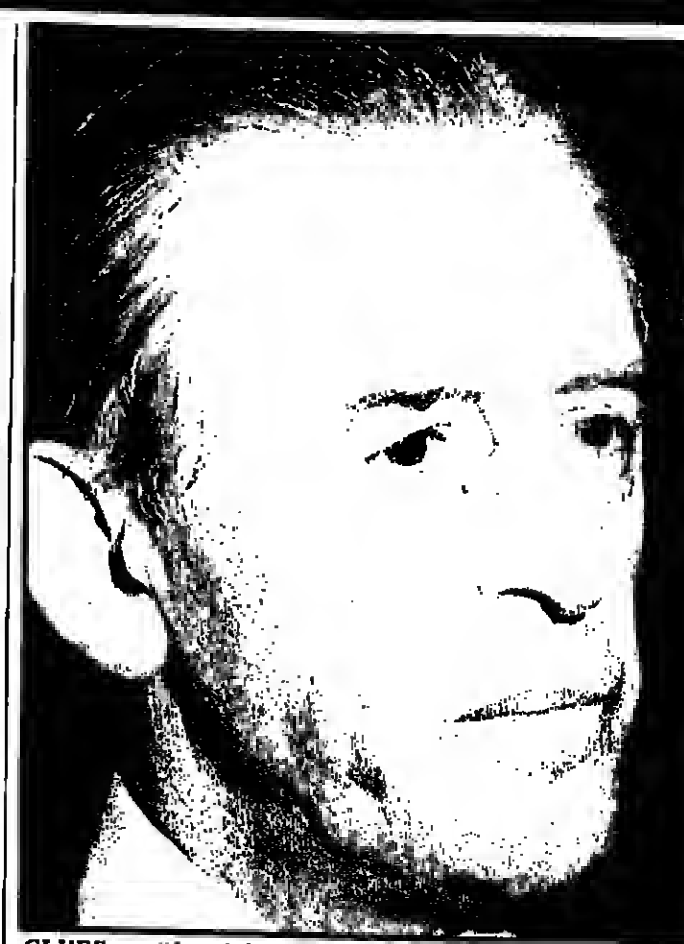
TWO of Japan's leading computing firms have teamed up to form a systems house aiming at sales of £9 million in three years.

Mainframe manufacturer Fujitsu, Japan's biggest computer company, and Matsushita, one of the leading electronics and small computer firms, have formed MF Information Systems. The 70-strong company will develop systems based on computers from Fujitsu, Matsushita and Panafacom, another joint-venture company which produces mini and microcomputers.

Fujitsu builds IBM-compatible mainframes and is IBM's fiercest rival in Japan - and Matsushita is on the verge of signing a manufacturing deal with the US firm. That agreement will cover small business computers, office automation products and terminals.

Matsushita's move into mainframes comes 20 years after it pulled out of that market.

MF Information Systems will operate only in Japan.



CLUFF... "Intended to be a public relations exercise".

by Nuala Moran

THE Institute of Data Processing Management (IDPM) and the Local Authorities Management Services and Computer Committee (LAMSAC) have set up an informal working party to redraft the Data Protection Bill.

Ted Cluff, secretary-general of the IDPM, hopes to prepare a first draft by the end of July. It will then be circulated to other interested bodies for their comments and suggestions.

"This is intended to be a public relations exercise," said Cluff. "I don't think the Data Protection Bill will be brought back in until the October session of Parliament. This should allow us plenty of time to draft a Bill in layman's terms."

"If the Home Office is faced with a widely representative group of people saying this is how we think the Bill should be, it will have difficulty resisting."

Commenting on what changes

he expected from the present Bill, Cluff said: "I would like the Bill to be workable, which the present one certainly isn't. It should meet the needs of those who think privacy is an issue. This government regards the matter as a trade issue not a secrecy problem."

Delegates at a one-day conference on data protection, held at the University of Leicester on May 11, seemed to reflect Cluff's view that the Bill should be redrafted before it came before Parliament again.

About 128 delegates attended, representing local authorities, constabularies, examining boards, health authorities, banks and other commercial interests, government departments and university researchers.

The conference was chaired by Sir Norman Lindop. He opened the conference by stating: "The Data Protection Bill will never see the light of day again in its present form."

The government's approach to data protection was to have been presented by David Waddington, a Minister at the Home Office, but as the Bill has now fallen he declined to attend.

A critique of the Bill came from Paul Sieghart who was a member of the Lindop Committee. He said the UK had to have a Data Protection Bill which conformed in good faith with the European Convention on Data Protection and argued that the Bill as it stood did not.

He claimed that the Bill did not even achieve its UK objectives, saying it was "grossly over-regulatory of a vast number of users who won't even know whether or not they are complying unless there is a complaint against them."

Summing up, Lindop said that the dangers were greater in the public sector than the private because of the scale of personal information held by public bodies.



HALL... "There's a hell of a need for teacher training."

Bright pupils highlight the need for teacher training

by John Kavanagh

SCHOOLCHILDREN are becoming expert at computing - but there is still an urgent need for more teachers.

That was the comment on the British Computer Society schools computing competition by Peter Hall, former ICL director and past president of the society, who chaired the judging panel.

The competition, part of the society's jubilee celebrations, attracted over 100 entries from primary and secondary schools and colleges. It was partly backed by the Department of Industry.

"The quality of all entries has been improving steadily," Hall said. "There are more and more signs that children know how to put systems together. There is also a much greater appreciation of what computers can do."

"But there's still a hell of a need for more teacher training."

Hall's views were backed by Ian Robley, who teaches computer studies at King James I School in Bishop Auckland, Durham.

"The pupils did all the work themselves," he said. "We have some superb programmers here. They work on the computer in the mornings and at lunch times. All the programming is in Basic but some pupils are moving on to machine code."

Robley is a chemistry teacher who has moved into computer studies by taking an in-service course. Three other staff teach the subject as a sideline.

The school has two Research Machines microcomputers and hopes to get some BBC machines with the £3,000 prize from the Department of Industry. The school

also won a Microvitec colour display.

The winning project involved developing a system to identify teachers who were available to supervise a class if a teacher was absent.

Headmaster Tony Howells said this was a contentious issue among teaching unions. "Some staff argue that they have to fill in more often than others," he said.

There were 27 winners for prizes from microcomputer firms and two public utilities. A primary school, Meldrum Primary in West Lothian, won a Commodore 64 for producing a "most professional" specification for a system to test reading and spelling.

Other entries covered almost everything from stage lighting control to maintaining records of dairy herds.

Smalltalk gets licensed

by George Black

XEROX has announced licensing for its Smalltalk-80 high level language and operating system which its fans claim will push CP/M and Unix out of the small computer market. Smalltalk was adopted by Apple under licence and used as the basis of the software of its high-powered 16-bit micro Lisa.

The corporation has hitherto given Smalltalk a low profile. But its authors, Adele Goldberg and Dave Robson, have now published a textbook *Smalltalk-80, the Language and its Implementation*.

The high-level language and operating system was developed at Xerox offices in Palo Alto, California, and used as a research tool for

10 years before the company decided to commercialise it. It was demonstrated at the American National Computer Conference last June under the name of Xerox-1100 Interlisp-D.

The software centres on a mouse electronic pointing device which opens up "windows" on the VDU screen and mixes text and graphics.

Xerox is now offering a deal at \$20,000 for licensee's internal use and next year at \$150 per unit for licensee to make Smalltalk commercially available.

The software technology was passed on to Apple, which has used its concepts as the basis of its proprietary operating system for the new 16-bit micro Lisa.

Staff to share £300,000

STAFF at bureau and systems house CMG will this year share out almost £300,000 at the rate of 38p a share for the several hundred staff shareholders.

The group pushed its turnover to a record £21.5 million, 75% up on its last full year results in 1980/1 of £16 million and boosted its profits to over £1 million before tax. This is an increase of 34% on last year's eight-month figures, brought out to bring the company into the normal tax year.

Last year, almost 400 CMG staff put up £1.1 million to buy shares in the company after the departure of chairman Bryan Mills. This put control of the company, 56% in total, into the hands of what it terms "non-founder" employees.

The company has attracted a great deal of national attention over the years for being 100% owned by its working staff.

Over half of the group's revenues come this year from the continent, with its Dutch subsidiaries putting up 47.5% of the total revenues and over 53% of the profit. Operations in Belgium and Germany are being reorganised, according to the management.

The traditional information processing services part of the company provided about half of the group's turnover. This was boosted by over £2 million in revenue from its combination of packages, micros and bureau services sold under the single label of Microfact.

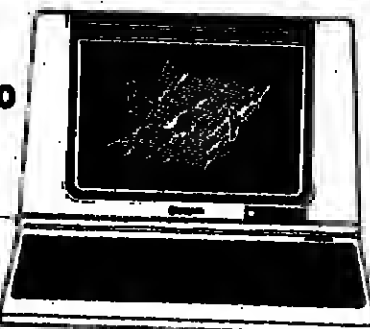
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US plans a supercomputer

by Howard Karten

THE White House Office of Science and Technology Policy has asked the Energy and Defence Departments to lead the US government's role in developing a supercomputer.

At present, the two largest computers in the US are manufactured by Control Data and Cray

Research, both in Minnesota. The Institute of Electrical and Electronics Engineers and US Academies Board Group, the ad hoc committee on scientific supercomputers, is to issue a report in August on US government initiatives required for maintaining the US lead in supercomputer development.



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Banks take non-stop Chaps way

by John Kavanagh
BANKS have moved closer to the automatic settlement of bill payments with the acceptance of gateways to the Chaps (clearing house automated payment system) national clearing system.

The 12 London and Scottish clearing banks taking part in the Chaps project, plus the Bank of England, have installed Tandem Nonstop computers to link them to British Telecom's public packet switched service.

Nine banks will connect their mainframes to the network through the Tandem gateways, while the others will enter transaction details directly to the Tandem machines.

"Some of the big banks could make payments across the network from their existing branch terminals linked to their mainframes," said Ken Robey, Chaps manager at software house Logica, which won the £500,000-plus contract to develop the gateways.

Each gateway can handle 36,000 transactions a day. Transactions totalling billions of pounds will go across Chaps each day.

Chaps will clear payments the day they are made. The total paid into received by each bank will be sent through the network to the Bank of England every evening so the UK banking system's books can be balanced the same day.

Chaps is due to go live early next year. In the meantime the banks are arranging the links with their mainframes, while Logica is helping some of them set up the payments application on the Tandem machines under separate contracts.

OEMs hint at future infidelity

by John Riley
COMPUTER manufacturers should not expect systems houses to stay loyal to them, a systems house boss warned last week.

Voicing what many OEMs have thought for some time, Steve Russell, managing director of Sussex-based Scan Data International, said: "The days of fidelity to suppliers by systems houses are nearly over."

"In the past our hands have been tied to developing a software library for one manufacturer's equipment, but with the more universal use of standard operating systems there is less reason to stay with one supplier."

And to prove the point, Scan Data, an OEM for Texas Instruments minicomputers and Onyx microcomputers, is negotiating a £2 million deal with Toshiba. The plan is to market its T100 eight-bit Z-80 based briefcase CPM micro with a liquid crystal display, and its new T300, an Intel 8088 based 16-bit PC which supports MS-DOS.

Russell also sells the Texas Instruments' PC, and recently bought up the trading rights for the Mecator Business Systems Intel-based Onyx lookalike, which he is pushing down to the PC level. "We are almost becoming a

clearing house," he said. "We aim to have four or five PCs on the go because at any one time one might be more appealing than another to the market place in terms of functionality or price."

He has also looked at the top end of the minicomputer, but after a recent visit to the US to see networking developments he has decided to reject 32-bit technology and stay with TI.

"We were banging our head on the ceiling on the mini side of the business," he said.

"We took a look at the 32-bit technology offered by several companies and flirted with them, but with PCs and minis now being increasingly linked through Ethernet we see no need for it, and decided to stick with 16-bit minis."

Russell claims that Scan Data's first half results, due out in July, will be substantially better than for the same period last year. The turnover last year to December 1 was about £4.3 million with a profit of £304,000.

"Last year we were affected by the dollar, but we are now protected because TI equipment is bought in sterling, and we buy forward for the Onyx boxes, which cost a small proportion of the sold product."



RUSSELL... "The days of fidelity are nearly over."

Fujitsu gets into its personal stride

by Ivan Beresyl

IN introducing two Fujitsu PC models, the eight-bit micro 7 and 16-bit multi-user micro 16 the week after the Hannover Fair, Klaus Brand, manager of Frankfurt-based Fujitsu Microelectronics GmbH and European marketing manager for the leading Japanese mainframe and robot supplier's micro products announced that their deliveries will start in October.

"Fujitsu is known as an OEM supplier in Europe, through our sales of big machines via Siemens, ICL and Burroughs," he said. "This gives us an image problem, which we'll have to overcome gradually to make good in a typical consumer products area like micros and personal computers."

Due to this, market introduc-

tion will take over a year, Brand predicted, disclosing that Fujitsu Microelectronics had already signed 15 agents and was aiming to build a network of 100 agents in West Germany alone.

In Japan, Fujitsu sold its first PCs in 1981, broadened the product spectrum the following year and is scheduled to produce 200,000 Micro 7s in 1983. This model is to retail for "around DM 1,500" in Germany, and the Micro 16, in relation to which an added 280A CPU allows for CPM use, for "under DM 10,000".

Forecasting "a big push over the next three years," in the course of which 1980-founded Fujitsu Microelectronics is to come into its own, grabbing a 5% share of the PC market and occupying 15th

place in the league table of microcomputer suppliers in Europe, Brand said that the target was to sell DM 50 million (113m) worth of personal computers in Germany, England and France by the end of the 1984/85 fiscal year (March 31).

After a decade's presence in the Japanese market through distributors, Nixdorf Computer has established a Tokyo branch of its own, which will primarily concentrate on penetrating the Japanese market for office systems and will also serve as a springboard for opening new branches elsewhere in the Far East. The branch office "will look for a turnover of DM 3 million in the first year, and for increasing that tenfold by 1986," according to its managing director, Hans Wilke.

Will Wang take Pick and Unix?

by John Riley

WANG has brought forward plans to put a version of Unix on to its Professional Computer, and the Pick operating system may follow.

"We have plans to extend the functionality of the PC both up and down," confirmed Reg Broughton, Wang's director of Marketing Support Services. "Both Unix and Pick have already been discussed and would go on plug-in boards, like the one we already have for CPM emulation."

But Broughton ruled out any suggestion that Unix would go on Wang's minicomputers.

"Our own operating system for the VS Series is very good. As the PC is able to act as a workstation for the VS Series, we would be able to provide a distributed Unix environment off our own operating system."

Wang is well aware of criticisms about availability of software for its machines and is mak-

BROUGHTON... Discussing things.

ing sure that the PC is well stocked.

Two weeks ago Wang UK signed up with Peachtree to supply a standard set of general business application packages, plus one or two others - about nine in all - for the PC.

Wang will start selling these packages in a few weeks time when its PC dealer strategy, involving some 30 dealers, is announced.

Wang announced 3270 emulation for the PC at the NCC exhibition in the US, which comprises a plug-in board and all systems software, as well as a large library of third party software also to run on the PC.

Geac goes public and raises \$24m

by George Black

GEAC, the Canadian mini and mainframe computer manufacturer, has gone public on the Canadian stock exchange, raising a total of \$23.5 million.

The independent firm, set up in 1971, came to the UK in 1975 and grew last year by 60% to a turnover of \$48 million, with £8 million being generated in Britain.

Most of the firm's development work is done in Canada but its successful AutoStar banking system was written in the UK at centres in London and Bristol.

AutoStar, which was the outcome of a collaborative venture between Geac and Midland Bank, has just been launched commercially in this country.

Geac's other main line of business is in educational and library-turnkey systems. The British Library lending division, with 4.5 million entries, chose Geac as its chief supplier and other customers include Somerset County and the South Bank Polytechnic.

SALES BRIEF

Philips lands \$16m Indian phone deal

PHILIPS has won an order worth \$16 million to supply containerised processor controlled telephone exchanges to the Indian Post and Telecommunications. Ten exchanges have a 3,000 line capacity and 15 a capacity of 2,000 lines.

As part of the deal Philips will also be delivering a software centre and a training centre.

ICL update

SHREFFIELD City Council is to spend £2.5 million in updating its ICL installation. A dual 2988 mainframe with 32 Mbytes of mainstore and 6,000 Mbytes of backing store controlled by CAFS-ISP is to be installed over the next 12 months. 140 DRS workstations are included in the package.

NonStop telexes

VITEL, the telecommunications company based in London, has installed a Tandem NonStop computer at a cost of £350,000. This will be the basis of the Vitelex service, storing and transmitting telexes worldwide at any time. The system also received calls for redirec-ting to subscribers, and provides multipoint telexing which enables one message to be automatically directed to a number of locations.

German agent

COMPUTER maintenance company Quest International Computer Services, a subsidiary of Quest Automation, last week became UK service agent for the German made Wordnet 2000. This machine allows up to eight electronic typewriters to interface with a wordprocessor or micro or minicomputer.

AIB online

THE Allied Irish Bank (AIB) will be providing fully online banking in Ireland within the next two years. The bank has ordered a nationwide data communications system from Racal-Milgo worth \$3 million. An enhanced CMS Series 2 network management controller will form the basis of the system. This is to be sited close to the AIB's IBM mainframe in Dublin.

To the point

WITHIN the next few weeks NCR will be delivering an I-9300 mainframe computer system to the Aero Needles Group of Redditch. The system, which will cost Aero about £100,000 will initially have 19 terminals for use by sales, accounts and production staff. Over the next three years the number of terminals will be increased as wider use is made of the procedures.

All at sea

THE Royal Navy has placed an order worth £2 million with Marconi Communications Systems for a remote control system for communications in home water. The system is to be based on a U 7000 microprocessor, and will be designed at Marconi's Radio and Line Division, at Chelmsford. It will enable control and monitoring of all equipments at a number of remote sites throughout the UK from command and supervisory centres.

Thorn deal

A £2 MILLION deal with Thorn Television Rentals has given ICL its first commercial CAFS user. A dual 2988 system with two CAFS-ISP processors and 250 DRS 20 workstations is to replace the existing 2972 mainframes.

6,000 printers

VIDEO games giant Atari has taken delivery of 6,000 Model 739 mini printers from Centronics. The printers, designed to deliver near letter quality text, are being connected to Atari 800 microcom-puters.

A great deal less,

If you're thinking of buying new terminals, Data Logic has some important news for you. Especially since there's been a bit of a stir in the business lately.

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CW74



Micro foes clash over CP/M

by George Black

RIVALRY between the two top micro systems software houses is becoming intense.

Digital Research, authors of the most popular system for basing applications on, CP/M, has been coming steadily more into direct competition with Microsoft whose MS-DOS operating system scored a major coup when it was adopted by IBM.

Claim and counterclaim have been flying through the air this week. Microsoft accused Digital of ejecting its delegate to a London seminar in full view of the assembly.

But Digital replied: "This isn't true. He was asked whether one of our representatives could attend its next public event and told no. He

was then taken quietly aside and asked to leave. Everyone else was at lunch at the time."

Microsoft's claim that ACT, the distributor of the top-selling Sirius micro, had stopped supporting CP/M-86, was challenged by Digital and flatly denied by ACT.

But Microsoft's UK general manager David Fraser commented: "I still don't think they are now shipping it. It's a question of how you interpret 'support'."

Microsoft says it has stopped selling its CP/M-86-based Basic interpreter and Pascal and Fortran compilers because Digital will not give the necessary technical support. But Digital's case is that it has had to launch its own Personal Basic executing Microsoft M-Basic code because Microsoft



FRASER... "How do you interpret support?"

had been reluctant to implement M-Basic under CP/M-86.

Digital's European operations manager Paul Bailey said Personal would compete with M-Basic head-on and would be enhanced

with graphics in September.

Fraser said: "In the US CP/M has been pushed right out by MS-DOS and it's sliding in Europe too. So they are getting uptight and acrimonious about it."



BAILEY... "The battle hasn't been joined."

Bailey answered: "They are saying the battle is over when it has not yet been joined. If they claim there will be only one operating system I am here to tell them they are wrong."

Micro Focus may make a million

MICRO Focus stands to make £1 million more than expected from its share placing this week. Requests for the £1.55 shares outweighed the number available by five times. The price was later fixed at £2.40 - but even so the shares were three times oversubscribed.

Micro Focus was hoping to raise £2.1 million by selling 23% of its shares on the Unlisted Securities Market, a cheaper way of getting on the Stock Exchange than going for a full listing.

The new money is needed to back a push into the mainframe market and to install an office automation system. That system will be used to help run the business and to develop new products.

"We had hoped for a good mixture of small investors and big institutions and we got it," said financial executive Paul Kilduff. "We recognised many of the names of the private investors as people in the industry. The level of interest was very gratifying."

The price was set following postal bids. Dealing in the shares at the Stock Exchange was due to start yesterday (Wednesday).

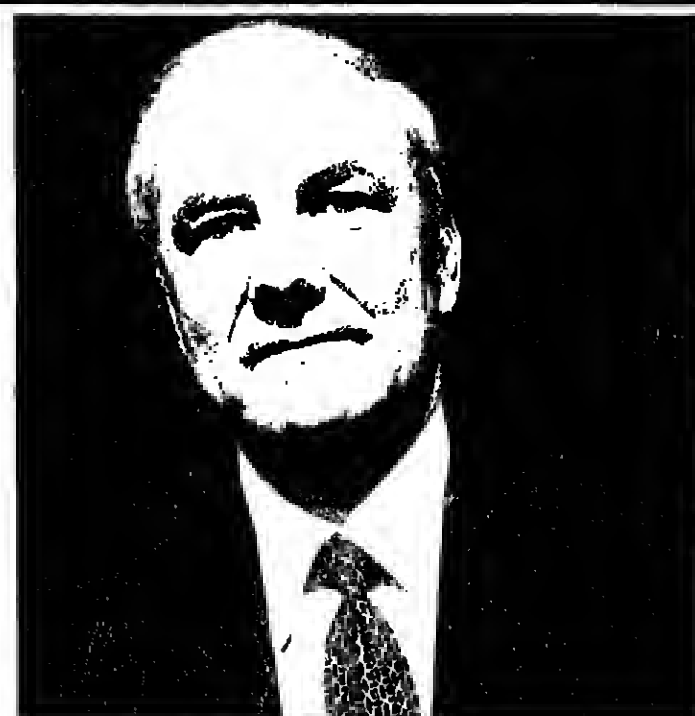
Harris boss attacks the predatory Japanese

JAPAN was criticised last week for its "predatory practices" in technology markets by the president of Harris Corp, the US communications and information processing equipment manufacturer.

John Hartley, addressing the US Chamber of Commerce in London, pointed to the degree of subsidisation in Japan, particularly in research and development and exports, and the artificial value of the yen as threats to Western manufacturers.

But he also disagreed with the Reagan administration's stance on the export of US technology (see front page), which he called unrealistic.

Hartley, agreeing that R&D was the key to the future, said that the \$1.5 billion Harris Corp had recently joined a research co-operative in the US to develop technology, but that there would be no co-operation on marketing. Harris will spend about \$100 million of its own money on R&D this year, with a similar amount being spent on projects it is working on for the US government.



HARTLEY... Reagan's stance in exports "unrealistic".

As to the UK, US computer companies have trouble recruiting qualified researchers and designers. But Harris has hired in excess of 550 new college engineers this year in its annual "milk run", which Hartley said represented more than 1% of the graduate engineers in the US.

His own company, Hartley said, must do more in marketing its products. One-third of its sales are international, with Europe the most important market.

Hartley added his voice to those calling for a single multifunction desktop workstation which can handle text, voice and data.

DoI tells users to set IT standards

by Donald Kennett

A BID to involve users in setting standards for information technology has been launched by the Department of Industry.

But the government wants to avoid putting any money into it, preferring to play its favourite role of catalyst by helping to set up a self-sufficient IT Users' Standards Association.

Government funding is expected to stop at the eight man-month feasibility study commissioned from consultant Keith Graham in March, with the possible addition of some advertising to attract members towards the end of the year.

From then on users will be expected to provide enough in subscription fees to fund a small secretariat and enough in personal involvement to sustain a useful level of standards-influencing activity.

Standards setting is currently dominated by suppliers, but it is users that stand to benefit most by

the existence of standards - particularly if they are good ones. There have been many calls from standards committees for users to involve themselves. But, as Graham points out, the cost of such involvement can be great and the motivation small.

Small users in particular lack comprehensive expertise and are unlikely to wield sufficient influence on their own to have any significant impact on how standards develop.

A standards association could provide a forum for users to exchange views and track developments in technology and standards, as well as to lobby collectively for what they want, Graham believes.

In his initial investigations, he has counted more than 30 users' groups of various kinds, such as the Telecommunications Managers' Association, the ICL 2900 Club and the IBM Computer Users' Association. "There are these fragmented groups of users,

but go across the board so board," he says. "The upside is rather better represented with groups like the Equipment Trade Association, the European Computer Manufacturers' Association."

He quotes a study presented to the French government which estimated that between 21% of users' costs were saved if standards were used in more areas of information technology.

Part of his brief is to investigate whether an appropriate standard could be set up within a group, such as the British Standards Society, which is an of the British Standards Institution designed for standards users' needs.

The study was proposed to a 10-member private sector committee set up to advise on speeding up the formation of IT standards. The was backed by the National putting Centre.

The Irish move to a more lucrative London

by John Kavanagh

AN Irish software house has moved into London's West End because its home market is becoming saturated. At the same time the company, Systems Plus, is taking on new hardware because of the boardroom and trading problems of its main supplier, Vector Graphic.

"Digital Equipment micros will be our main thrust from now on," said managing director Robert Bailes. "Vector Graphic's troubles have caused us a lot of problems. They're really struggling."

Last week it was revealed that Vector had plunged to a \$1.3 million loss in the first nine months of its year, while president Fred Soow was axed after just 10 months.

Systems Plus has now become an official DEC microcomputer dealer. It is also considering the IBM Personal Computer and a UK machine.

The company was formed in the late Seventies and has 100 installations, including seven in the London area. Bailes said it had to look outside Northern Ireland because of the size of the market and amount of competition there.

"If you get 5% of the market in the UK it's worth more than 20%

of the market over there," he said. Bailes added that the company would still be able to take advantage of low business costs in Belfast. "Staff costs are half what they are here," he said.

Most of Systems Plus' Belfast staff come from the local Queen's University. The company specialises in database systems. It also hopes to get a lot of business with a package for golf clubs.

The company has 14 staff in Belfast and expects to have 12 in London this year.



BAILES... Has Vector problems.

Former giant David is at the crossroads

by Ivan Berenyl

DAVID Computer GmbH of Stuttgart, successor to once phenomenally successful West German mini-maker DDC and the latest venture of former Kienzle salesman Peter David, is at the crossroads.

Claiming a backlog of 700 orders for its 16-bit Fairchild microchip-based David 203 office system, and a liquidity crisis brought on by delivery hold-ups with the long-gestating Fairchild 9445, it has been bailed out by its bankers through a DM8.8 million (£2.3m) rescue package. But simultaneously the bank put a controller in charge of the company, which reportedly led to managerial resignations.

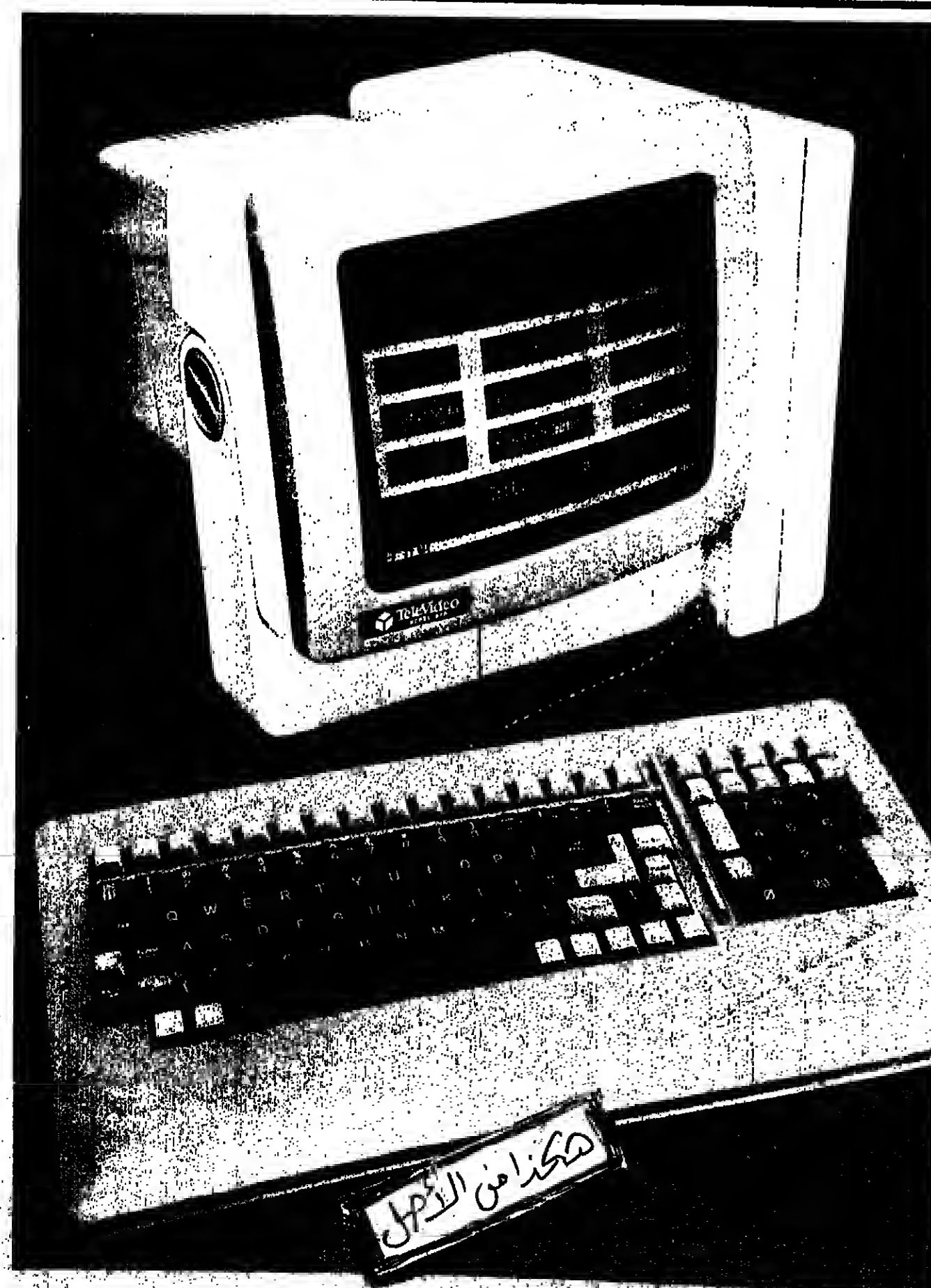
Exhibiting the 203 in Hanover for the second year in succession, the company promoted it as entirely its own development with fully integrated WDPF facilities and the first German microcomputer which does not necessitate phase-by-phase implementation.

but can fulfil all commercial software requirements immediately upon delivery in configurations ranging from DM10,000-50,000 (£5,000-£25,000).

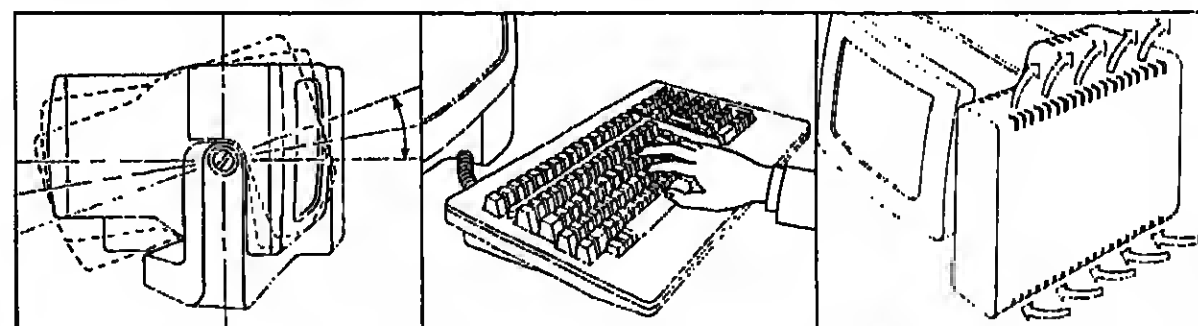
Barely a week prior to the Fair, David Computer announced the conclusion of a three-cornered deal, under which it was to provide a "special micro-based solution" to the needs of the 38,000-member carpenters' and cabinet-makers' association, BHKH.

But, while accepting the viability of the 203, it was all too little and too late for the bankers to give a carte blanche, apparently, since on examination of David Computer's books allegations of serious mismanagement ensued.

It transpired that a portion of the 200-plus existing installations were four times costlier. David 230s Data General Nova look-alike minis built around a special Bytornix kit by DDC - delivered to impatient 203 customers as a stop-gap measure.



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Blocked retailers hunt an opening

RETAIL giants are seeking a computer company to help them cut through a communications blockage.

The problem for about 30 large retail companies, including household names such as Tesco, Woolworths and Boots, is that a lack of standardised file transfer protocols is holding up direct transmission of trading data between them.

The companies have been working together since 1978 through the Article Number Association with the aim of eliminating paperwork in their transactions with each other.

Last October they published

years off," said Andrew Secretary-General of ANA. There will be additional information time after that. The fit in with our time scale want to be able to communicate now."

The main task of the computer company will be on protocol conversion, also carry out other tasks media conversion and erroring. Companies would then have to hatch all their messages thus send them individual destinations.

The aim is to eliminate paperwork. "At Tesco 135,000 invoices each week



TESCO... One of the giants aiming to eliminate paper work.

formatting standards for electronic data exchange which have aroused interest from 250 companies so far, and 50 bilateral agreements for electronic data transmission have already been made.

Bilateral agreements for transmitting documents such as invoices, orders, and so on, are inefficient and the ANA wants to find a computer company to act as a central clearing house.

"International standards for file transfer protocols are about two

law they have to be retried seven years," said Derek Smith, Director of Tesco's Information Services, explaining the problem.

The companies that change electronic data magnetic tape and floppy

The ANA is working to prepare the way for real time data transmission. It is also preparing which are not yet computer automation.

July 4th 1983 will be Independence of America Day

Councils berate ICL late arrival

by John Kavanagh

ICL is at last on the right road with a local government system aimed at handling new legislation on rates and rents rebates.

The company's traditionally staunchest allies say its failure to deliver a working system on time has cost them extra work and long delays in getting out rates demands and rebates.

At the same time ICL's lambasted Dilis system on April 25. This was delayed until Monday of last week — and in the meantime users were fuming over the extra work, claiming the system didn't work.

But the new version has saved ICL's blushes. "It has met its promise of supplying something

that works — with warts on," said Malcolm Temple, treasurer at Salisbury Council.

Councils and computer firms were given short notice of the new rules — but software house F International produced a working system on time with a consortium of eight authorities. Six are running the system on ICL 2900 computers in batch mode. An online version is expected in the summer.

"I don't like to knock ICL, but we've managed it and they haven't," said Mike Cheese, assistant treasurer at Babergh District Council, one of the F International consortium. "If the full system goes as well as the batch interim one we will be well satisfied."

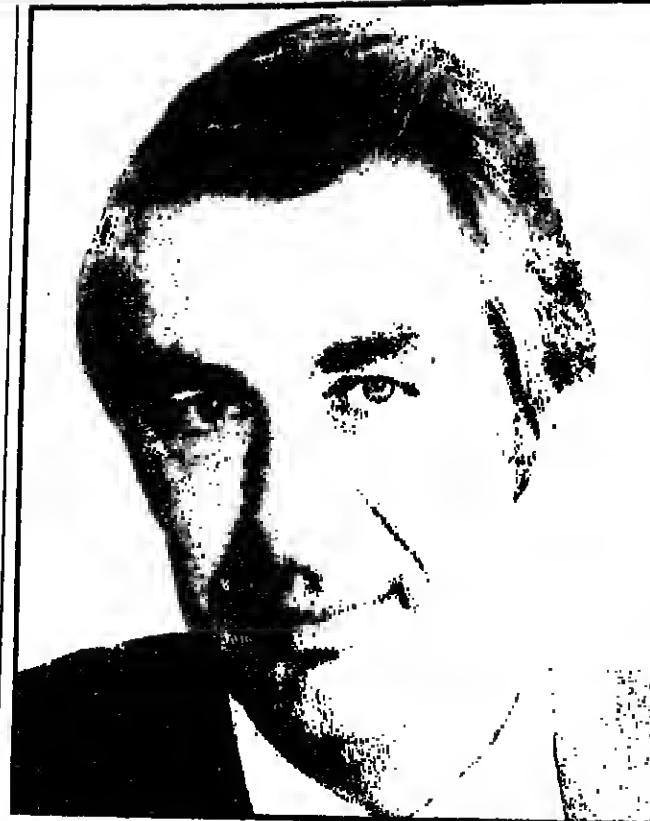
On the Dilis front users have welcomed the latest release, now on trials, but it is still not approved by the Chartered Institute of Pub-

lic Finance and Accountancy. ICL and CMC were nominated preferred suppliers by CIPFA — angering other firms, which said this hit their chances of winning business in a huge market.

But the "preferred supplier" tag backfired on ICL, for the company failed twice to get CIPFA approval for Dilis. A CIPFA statement on the latest release is expected late this month, but it is believed to be an interim release and full approval is not expected before the autumn.

"This release is being well received but it still doesn't give everything required," said CIPFA under-secretary Rod Aldridge.

Frank Baxendale, assistant treasurer at Lancashire County Council and chairman of the Dilis user group, said the new release was the best yet.



SIMPSON... "Simplest eight-bit to 16-bit upgrade costs \$1,890."

Durango PCs will convert to 16-bits

by Philip Hunter

THE 1,000 UK users of the eight-bit Durango personal computer will not have to throw their kit away to convert to the new 16-bit IBM-compatible range. The California-based company claimed it was the first to offer complete software compatibility between its eight-bit and 16-bit micros when it announced the new Poppy range to the UK last week.

"The simplest eight-bit to 16-bit upgrade costs \$1,890 in the US," says company president Jim Simpson.

But the company is unlikely to be alone for long in offering software compatibility between eight-bit and 16-bit micros. ICL is one of several companies with an announcement in the pipeline, the PC2.

Like the Poppy, ICL's PC2 is expected to allow up to four screens to be linked up to the single processor.

The future success of the Poppy will depend on its applications development software, and on the new market for micros to be linked to IBM mainframes.

Simpson says the company is at

present considering four database management packages for implementation on the Poppy, including the popular dBase II.

And already 750 Poppys have been sold in the US as intelligent terminals linked to IBMs.

But Simpson says that the company has deliberately shunned the option of connecting up to local area networks (LANs). This, he says, is because neither IBM, which dominates the personal computer market, nor American Bell, which dominates the communications market for small machines, has accepted LANs.

"Ethernet, Wangnet and all the other nets have not become standards in any way," comments Simpson.

The Poppy will be distributed in the UK through a network of 30 dealers by Computer Ancillaries, at end user prices starting from about £3,500 for a two-disk single user system with 128K memory.

Computer Ancillaries already has its own IBM PC look alike on the market at the lower price of £1,995. It is the first British-built micro which supports IBM's MSDOS operating system.

VDU giant to make peripherals

by Andrew Thomson

THE world's largest independent supplier of VDUs is to branch out, California-based TeleVideo plans to announce a letter-quality printer within six months, with a full range of other devices to follow, according to Northern European marketing director Pat Harvey.

And TeleVideo is stepping up its assault on the micro market. Following last month's announcement of new eight- and 16-bit micros, a new Z80A-based portable will be available in the autumn.

"We're shipping over 4,000 units a month, not including the new TS803 and TS1603," says Harvey, "and by December, we'll be up to 20,000 computers a month — 100,000 for the year."

"We've spent half a million just tooling up for the injection mouldings for the cases. We had one machine, but it couldn't make the cases fast enough, so we bought another two."

The move into peripheral manufacture forms part of TeleVideo's plan to supply complete computer systems, and, although the daisy-wheel printer — which will be the first of the range — has been designed and built completely in-house, Harvey does not rule out the possibility of takeovers to fill out the product line.

"If you're buying from outside, you're giving some of your profit away," he says. "We're not interested in badge engineering. We'll either develop our own machines or buy the manufacturer."

And the TeleVideo expansion doesn't stop at new products. Founder and president Philip Harvey is considering going into chip manufacture, says Harvey.

"We need and want to be independent," he says. "We plan to spend 5% of revenue on R&D this year, but not on wing and a prayer stuff — we want to be at the volume end of the market. If 20 million people want it, we'll make it."

The new portable will compete with machines like the Osborne 1, being transportable rather than being a main power supply. A mains power supply will be needed to run the 25-lb. eight-bit machine. Defending the decision to stay with an eight-bit architecture, Harvey cited the vast array of CPM software available and claimed that most users are not concerned with how a machine works.

CABLE 83

Donald Kennett reports on a new telecomms conference

US cable TV net to offer data links

DATA communication services are to be provided on a cable television network currently being installed in Boston in the US.

The network was described by the US broadcasting consultancy Kalba Bowen Associates at On-line's Cable 83 exhibition and conference in Wembley last week.

The 25-man firm has done design and market research work in cable, satellite and subscription television and cellular radio for the last 10 years and the Boston network, being built by Cablevision Systems, is its first project involving data links.

The design also introduces a variation on the architectures familiar to UK observers, that of the hubbed tree and branch system. In this system, four or so interlinked tree-and-branch networks cover a franchise area, instead of just one, so that the data and voice carrier frequencies can be re-used several times within the same area.

Data channels capable of supporting links operating up to 19.2 Kbits-per-second will be provided on all four cables in the network, taking up to four channels in the video band on the residential service cables and also using frequencies below the video band.

Access will be on a contention basis using the CSMA/CD (carrier-sense multiple-access with collision detection) scheme on which Xerox's Ethernet is based.

Switching between channels will be added next year when the numbers of users connected to the network justifies it. Installation started last autumn and about 1,000 are connected now.

Meanwhile, organisational users' first links will point-to-point data links and trunk digital voice links. The voice trunks run between PABXs or from users to independent common carriers, which compete with AT&T on

same for commercial companies.

The Boston network design then became a four-cable system, two to carry 54 video channels each for residential subscribers, one to support trunk links for public institutions and another to do the

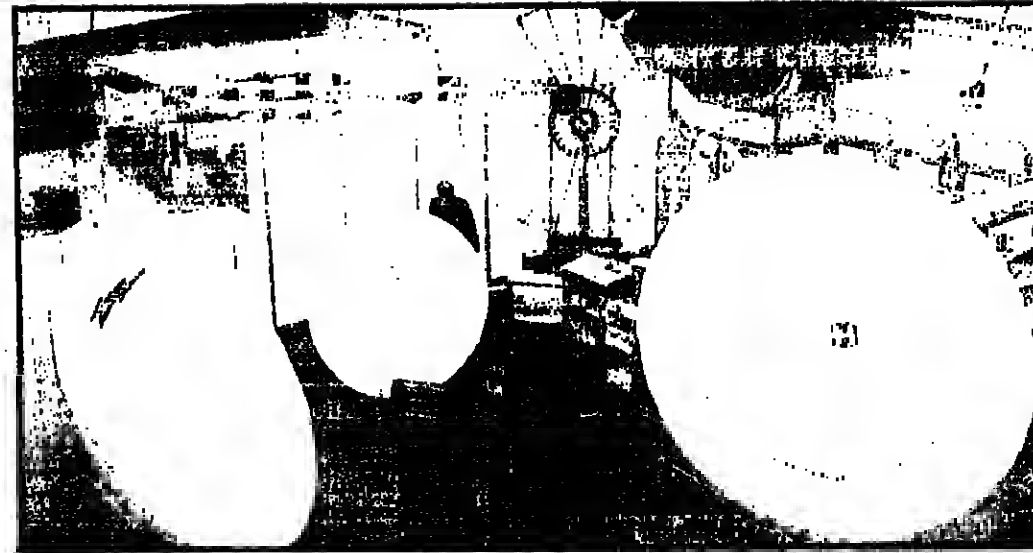
long distance call charges.

Kalba is also involved in evaluating bids for cable network franchises on behalf of the authorities in Saint Paul and Philadelphia.

Technology director Wes Vivian said that the Saint Paul system was required to support a population of at least 16,000 personal computers capable of communicating at up to 19.2 Kbps on a packet switched network and that so far at least one bidder has proposed a viable system. Saint Paul was an active centre of computing, he said, with the University of Minnesota putting in its own extensive computer network and manufacturers including Control Data, Cray Research, Amdahl and 3M.

Philadelphia was evaluating bids for four separate networks, all of which were required to have some provision for communications between microcomputers. One or two bidders had proposed provisions for packet switching and all proposed doing something about home computer users "later on", Vivian said.

All proposed to use the Jerrold Communicom cable network terminal, he added, which was a down-line loaded microprocessor with a packet assembling modem, to which a personal computer could be attached.



Dish antenna — British solution to the trans-Atlantic problem.

BT dishes up British wisdom

SEVERAL companies clearly agree with the government's contention that cable and satellite systems complement each other.

Although On-line's event was aimed squarely at the cable systems market, the lower exhibition floor was dominated by the three-metre satellite antennae.

During the conference, British Telecom's assistant managing director for broadband services, Donald Wray, also emphasised that a variety of media such as microwave radio, satellites, coaxial cable and optical fibre cable were all involved in supporting broadband or wideband transmission for television.

Wray seized the opportunity to point out that the dish antenna that we all know and associate immediately with satellite commu-

nications was not the first or only possible instrument for handling the signals.

When the first trans-Atlantic satellite link was set up via Telstar in 1962, the dish antenna was the British solution to the problem. The other participants in the link — France and the US — used a cat's cradle of wires running between various different sized poles and concealed under a dune.

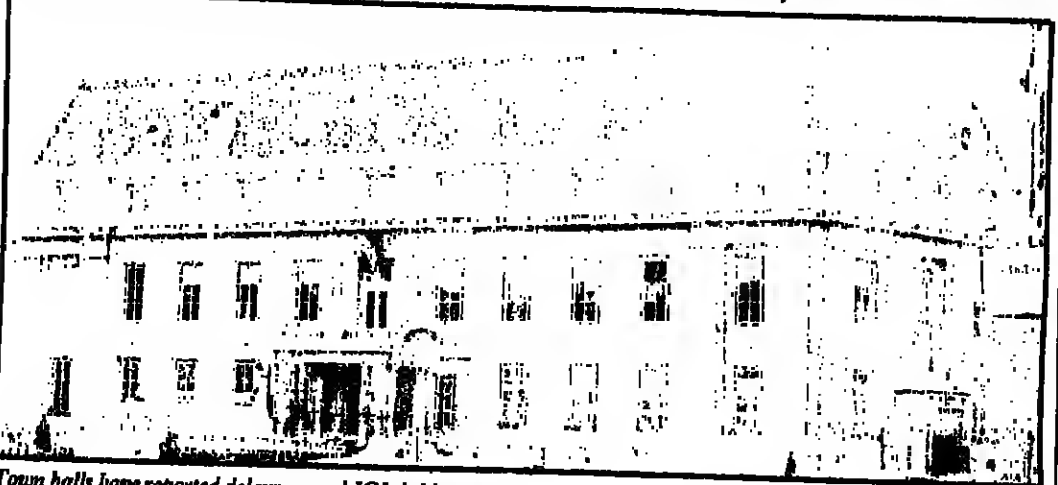
The point was to illustrate British Telecom's wisdom and foresight in these matters. In the current context this meant realising that BT had led the way in pointing out how demands for bandwidth in homes and offices would soon outstrip the capacity of the telephone line to satisfy and what was needed was a single integrated wideband network to de-

liver the full range of communications services.

In the new situation created by the government, it is impossible to know what national connections would be required between local cable networks, added, and the only way to do this was to use satellite.

To that end, BT was already negotiating with Eutelsat and Intelsat to ensure capacity would be available in the near-term and planning to use Unisat — the satellite to be launched by the consortium of BT, British Aerospace, GEC-Marconi — from 1986.

Cable 83 was claimed to be the first conference and exhibition in Europe to concentrate on network issues. More than delegates attended.



Town halls have reported delays — and ICL is blamed.

Plessey pips GEC to £10m deal

by Philip Hunter

PLESSEY has beaten GEC to the £10 million contract for a new computerised exchange to serve London's 25,000 telex subscribers.

But British Telecom says this will be the last contract for stored program control telex exchanges unless there is a surprise increase in the present total of 90,000 UK telex users.

BT's modernisation programme to replace UK telex exchanges was due for completion in 1990. But

competition from telex is likely to hot up in 1984 when BT makes a gateway available to allow terminals to link with the telex network from an ordinary telephone.

Plessey hoped more contracts would follow last month's London deal. It has already been beaten to the lion's share of BT's telex exchange replacements by GEC, with a £24 million contract to supply 10 smaller exchanges outside London, but had announced a new range of telex ex-

changes, the 8000 series.

New facilities, including the ability to send one message to many destinations with just one call, were enough to win BT's favour for the London exchange.

The 8000 is based on a range of minicomputers made by General Automation. Plessey this month announced an order worth £750,000, for 49 of the computers which, with bit-slice technology and gate array logic chips, are ideal for controlling telex exchanges.

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Personal computers? No thanks!

IF you have been worried lately about not being "computer literate," take heart. There are millions like you out there, and what's more a large percentage of them don't seem to care about computers as much as we might like to think.

As the use of personal microcomputers proliferates and seemingly develops into a galloping mass consumer market, independent market research organisations and some publishers outside of the specialised computer industry and trade media are also getting into the act. Their findings and conclusions about the personal computer revolution are particularly valuable because their studies are performed among groups of people representing a cross-section of the society rather than specific computer end-user groups.

One such survey dealing with attitudes towards personal microcomputers was conducted in the US by *Money* magazine, part of the Time-Life communications empire whose flagship magazine, *Time*, nominated the computer as "Man of the Year" in 1982.

Some of the most revealing findings about microcomputer usage pertain to the home computer market. *Money*, consumer electronics magazine, estimated

that market at 1,700,000 units in 1982 and expects it to more than double to 3,500,000 in 1983.

Nevertheless the *Money* survey of a random selection of its 1,000,000 subscriber base shows that while 70% of the people surveyed have seen a personal microcomputer in operation fewer than 9% actually own one.

More importantly, when asked whether they were likely to buy a personal micro during the next

year over 76% of the respondents did not think so. Of the remaining, only 10% thought it very likely that they may become micro owners.

However, the likelihood of purchasing a machine became greater over the next two years, even in the longer run over 56% still did not think it likely that they would succumb to the temptation despite publicity blitzes.

The survey also revealed that almost 43% of those surveyed have operated a personal microcomputer, and 25% of the businesses in which they worked had personal computers installed on the premises. Even so, 28% of the

pondents would not bother to take a personal microcomputer home assuming they had access and permission to do so.

At least 34% of the respondents expressed little or no interest in use of personal microcomputers in the home and only a slightly smaller percentage had the same attitude about their use for business. Among those who now own personal micros or have access to their use for non-business applications,

scared 23% on par with programming. Word processing was next with 22% mentions, self-education 21%, household management 17%, child education also 17%, while use of the personal microcomputer as a remote terminal connecting the user to another computer system was cited 13% of the time.

List maintenance, an application heavily touted by many personal computer suppliers did not do so well. Those who maintain their Christmas card addresses or are converting their little diary entries into their systems are definitely in the minority and this application was cited by only 13% of the users.

It seems despite all the hoopla, people are convinced that even the fastest micro can not beat the simplicity and cost/performance ratio of a simple card file index.

And who are all those sceptical and reluctant potential microcomputer users? Believe it or not, 90% are college educated, and 80% of them are employed in professional or managerial occupations. Their average household income is \$24,000 a year. Clearly they are among those who could probably afford to buy a personal microcomputer today and 48% of them are also in management.



CAUSLEY... Plans continued growth in sales and service centres.

DEC brings mini network to UK

by John Riley

DIGITAL Equipment's new mini network, which allows users to upgrade old development fault tolerant systems easily, is now available in the UK.

The Vaxcluster system, it is the latest phase of DEC's Systems Interconnect Architecture, and enables users to interconnect combinations of up to 16 top-end Vax processors and HSC50 mass storage servers.

DEC's minicomputer users can upgrade by plugging additional Vax processors or storage devices into a 70 Mbit per second bandwidth dual bus, connected by serial cables up to 45 metres long.

Users can also develop more fault tolerant systems by adding extra backup processors and storage devices so that if any part of the system crashes the system will stay up.

"We are calling it Vaxcluster to stop people thinking we've come up with something to replace Ethernet," said DEC's Vax systems marketing manager David Neal. "Typically we would expect about three Vaxclusters in a company to be linked by Ethernet into a local area network and from there into wide area networking systems."

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Data General Eclipses catch Ada

DATA General has brought in an Ada compiler using its MV Eclips superminis as host processors.

DO's Ada implementation is based on Rolm's, which was said to be the first to meet the American National Standards Institute (ANSI) standard formalised early

this year. It runs on the MV4000, MV8000 and MV10000 32-bit machines as well as Rolm's MSB/800, a ruggedised Eclipse built under licence from DG. Validation tests are taking place at the US Defence Department's Ada Joint Program Office.

The announcement hots up the

race to get the realtime language, promoted by the DoD, up and running on a variety of hardware from mainframe down to micro. Ada followed Cobol and Fortran into an elite group of officially acceptable languages and is widely tipped to become the standard vehicle for realtime application,

'Politicians in dark about technology'

by John Riley

ANALYSTS do not brief politicians properly about the effect of new technology on society, says a Euro-report published last week.

A basic weakness is that most studies only quantify the technical and economic impacts of new technology. When it comes to assessing the effect of new technology on society, however, studies are descriptive, making it "difficult to draw up a balance sheet of social advantages and costs."

The report, published by the International Organisation for Economic Co-operation and Development (OECD), suggests that social scientists tackling new technology assessments need to adapt somehow from batch to real time mode.

Such an approach would require a re-structuring of the framework for assessing, but policy options would be more readily available to decision makers when needed.

There are several other problems with assessments as carried out now, argues the report. A fundamental one is how we can determine how technology affects the public interest when no-one can agree what the public interest is.

Most analyses of new technology are national in orientation despite the growing interdependence of nations technologically, and there are no standard unit for measuring the social impact within frontiers let alone across them.

"Assessing the Impacts of Technology on Society. Organisation for Economic Co-operation and Development, 2 Rue Andre-Pascal, 75775 Paris, France. 80 pp.

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Safe aims high in Toronto

by Nuala Moran

LEICESTER-based Safe Computing has set up in North America. The new Canadian subsidiary, which is managed by Ken J. former head of Safe's UK manufacturing systems division, will be responsible for the market the Micro-SuPeS personal control package and a range of increased sales by ICL of developed applications and services for ICL's System 10 and 8.



RULE... Looking for decision makers.

Councils berate ICL late arrival

by John Kavanagh
I.C.L. is at last on the right road with a local government system aimed at handling new legislation on rates and rents rebates.

The company's traditionally staunch allies say its failure to deliver a working system on time has cost them extra work and long delays in getting out rates demands and rebates.

At the same time ICL's lambasted Dilis system for handling council's direct labour forces is at last coming right.

ICL was supposed to deliver the housing benefits system in April 25. This was delayed until Monday of last week and in the meantime users were running over the extra work, claiming the system didn't work.

But the new version has saved ICL's blushes. "It has met its promise of supplying something

that works - with war on," said Malcolm Temple, treasurer at Salisbury Council.

Councils and computer firms were given short notice of the new system on time with a consortium of eight authorities. Six are running the system on ICL 2900 computers in batch mode. An online version is expected in the summer.

"I don't like to knock ICL, but we've managed it and they haven't," said Mike Cheese, assistant treasurer at Ilchester District Council, one of the 14 international consortium. "If the full system goes as well as the batch interim one we will be well satisfied."

On the Dilis front users have welcomed the latest release, now on trials, but it is still not approved by the Chartered Institute of Pub-

lic Finance and Accountancy. ICL and CMC were nominated preferred suppliers by CIPFA - an agency other firms, which said this hit their chances of winning business in a huge market.

But the "preferred supplier" tag backfired on ICL, for the company failed twice to get CIPFA approval for Dilis. A CIPFA statement on the latest release is expected late this month, but it is believed to be an interim release and full approval is not expected before the autumn.

"This release is being well received but it still doesn't give everything required," said CIPFA under-secretary Rod Aldridge.

Frank Buxendale, assistant treasurer at Lancashire County Council and chairman of the Dilis user group, said the new release was the best yet.



SIMPSON... "Simplest eight-bit to 16-bit upgrade costs \$1,890."

Durango PCs will convert to 16-bits

by Philip Hunter

THE 1,000 UK users of the eight-bit Durango personal computer will not have to throw their kit away to convert to the new 16-bit IBM-compatible range. The California-based company claimed it was the first to offer complete software compatibility between its eight-bit and 16-bit micros when it announced the new Poppy range in the UK last week.

"The simplest eight-bit to 16-bit upgrade costs \$1,890 in the US," says company president Jim Simpson.

But the company is unlikely to be alone for long in offering software compatibility between eight-bit and 16-bit micros. ICL is one of several companies with an announcement in the pipeline, the PC2.

Like the Poppy, ICL's PC2 is expected to allow up to four screens to be linked up to the single processor.

The future success of the Poppy will depend on its applications development software, and on the new market for micros to be linked to IBM mainframes.

Simpson says the company is at

present considering four database management packages for implementation on the Poppy, including the popular dBase II.

And already 750 Poppys have been sold in the US as intelligent terminals linked to IBMs.

But Simpson says that the company has deliberately shunned the option of connecting up to local area networks (LANs). This, he says, is because neither IBM, which dominates the personal computer market, nor American Bell, which dominates the communications market for small machines, has accepted LANs.

"Ethernet, Wangnet and all the other nets have not become standards in any way," comments Simpson.

The Poppy will be distributed in the UK through a network of 30 dealers by Computer Ancillaries, at end user prices starting from about £3,500 for a two-disc single user system with 128K memory.

Computer Ancillaries already has its own IBM PC look alike on the market at the lower price of £1,995. It is the first British-built micro which supports IBM's MSDOS operating system.

VDU giant to make peripherals

by Andrew Thomas

THE world's largest independent supplier of VDUs is to branch out, California-based TeleVideo plans to announce a letter-quality printer within six months, with a full range of other devices to follow, according to Northern European marketing director Pat Harvey.

And TeleVideo is stepping up its assault on the micro market. Following last month's announcement of new eight- and 16-bit micros, a new Z80A-based portable will be available in the autumn.

"We're shipping over 4,000 units a month, not including the new TS803 and TS1603," says Harvey, "and by December, we'll be up to 20,000 computers a month - 100,000 for the year."

"We've spent half a million just tooling up for the injection mouldings for the cases. We had one machine, but it couldn't make the cases fast enough, so we bought another two."

The move into peripheral manufacture forms part of TeleVideo's plan to supply complete computer systems, and, although the daisy-wheel printer - which will be the first of the range - has been designed and built completely in-house, Harvey does not rule out the possibility of takeovers to fill out the product line.

"If you're buying from outside, you're giving some of your profit away," he says. "We're not interested in badge engineering. We'll either develop our own machines or buy the manufacturers."

And the TeleVideo expansion doesn't stop at new products. Founder and president Philip Hwang is considering going into chip manufacture, says Harvey.

"We need and want to be independent," he says. "We plan to spend 5% of revenue on R&D this year, but not on wing and a prayer stuff. We want to be at the volume end of the market. If 20 million people want it, we'll make it."

The new portable will compete with machines like the Osborne 1, being transportable rather than portable. A mains power supply will be needed to run the 25-lb. eight-bit machine. Defending the decision to stay with an eight-bit architecture, Harvey cited the vast array of CP/M software available and claimed that most users are not concerned with how a machine works.

CABLE 83

Donald Kennett reports on a new telecomms conference

US cable TV net to offer data links

DATA communication services are to be provided on a cable television network currently being installed in Boston in the US.

The network was described by the US broadcasting consultancy Kalba Bowen Associates at On-line's Cable 83 exhibition and conference in Wembley last week.

The 25-man firm has done design and market research work in cable, satellite and subscription television and cellular radio for the last 10 years and the Boston network, being built by Cablevision Systems, is its first project involving data links.

Consulting group manager Tom Lucke said the data communications plan had evolved from an initial proposal designed to make the franchise bid more attractive. The proposal was to include spare capacity on the network to give the city authorities free trunk links between offices. In the hot competition for franchises, US authorities have quite openly said that they would take into consideration what benefits the bidders could offer the community.

The Boston network design then became a four-cable system, two to carry 54 video channels each for residential subscribers, one to support trunk links for public institutions and another to do the

same for commercial companies.

The design also introduces a variation on the architectures familiar to UK observers, that of the hubbed tree and branch system. In this system, four or so interlinked tree-and-branch networks cover a franchise area, instead of just one, so that the data and voice carrier frequencies can be re-used several times within the same area.

Data channels capable of supporting links operating up to 19.2 Kbits-per-second will be provided on all four cables in the network, taking up to four channels in the video band on the residential service cables and also using frequencies below the video band. Access will be on a contention basis using the CSMA/CD (carrier sense multiple-access with collision detection) scheme on which Xerox's Ethernet is based.

Switching between channels will be added next year when the numbers of users connected to the network justifies it. Installation started last autumn and about 1,000 are connected now.

Meanwhile, organisational users' first links will point-to-point data links and trunk digital voice links. The voice trunks run between PABXs or from users to independent common carriers, which compete with AT&T on

long distance call charges.

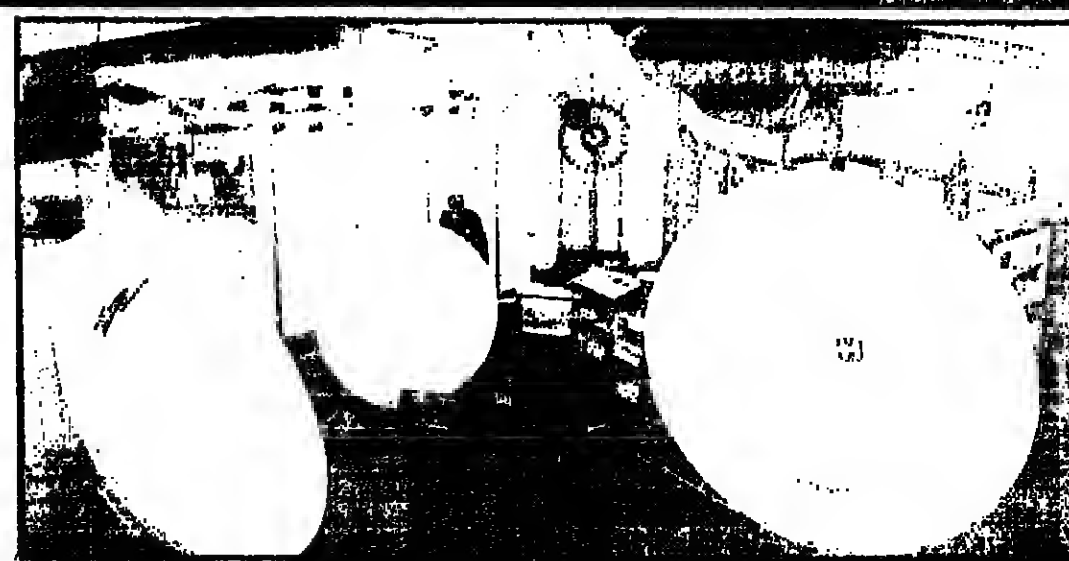
Kalba is also involved in evaluating bids for cable network franchises on behalf of the authorities in Saint Paul and Philadelphia.

Technology director Wes Vivian said that the Saint Paul system was required to support a population of at least 16,000 personal computers capable of communicating at up to 19.2 Kbps on a packet switched network and that so far at least one bidder has proposed a viable system.

Saint Paul was an active centre of computing, he said, with the University of Minnesota putting in its own extensive computer network and manufacturers including Control Data, Cray Research, Amdahl and IBM.

Philadelphia was evaluating bids for four separate networks, all of which were required to have some provision for communications between microcomputers. One or two bidders had proposed provisions for packet switching and all proposed doing something about home computer users "lister on", Vivian said.

All proposed to use the Jerrald Commucom cable network terminal, he added, which was a down-line loaded microprocessor with a packet assembling modem, to which a personal computer could be attached.



Dish antenna - British solution to the trans-Atlantic problem.

BT dishes up British wisdom

SEVERAL companies clearly agree with the government's contention that cable and satellite systems complement each other.

Although On-line's event was aimed squarely at the cable systems market, the lower exhibition floor was dominated by the three-satellite antennae.

During the conference, British Telecom's assistant managing director for broadband services, Donald Wray, also emphasised that a variety of media such as microwave radio, satellites, coaxial cable and optical fibre cable were all involved in supporting broadband or wideband transmission for television.

Wray seized the opportunity to point out that the dish antenna that we all know and associate immediately with satellite commu-

nications was not the first or only possible instrument for handling the signals.

When the first trans-Atlantic satellite link was set up via Telex in 1962, the dish antenna was the British solution to the problem. The other participants in the link - France and the US - used a cut's cradle of wires running between various different sized poles and concealed under a dome.

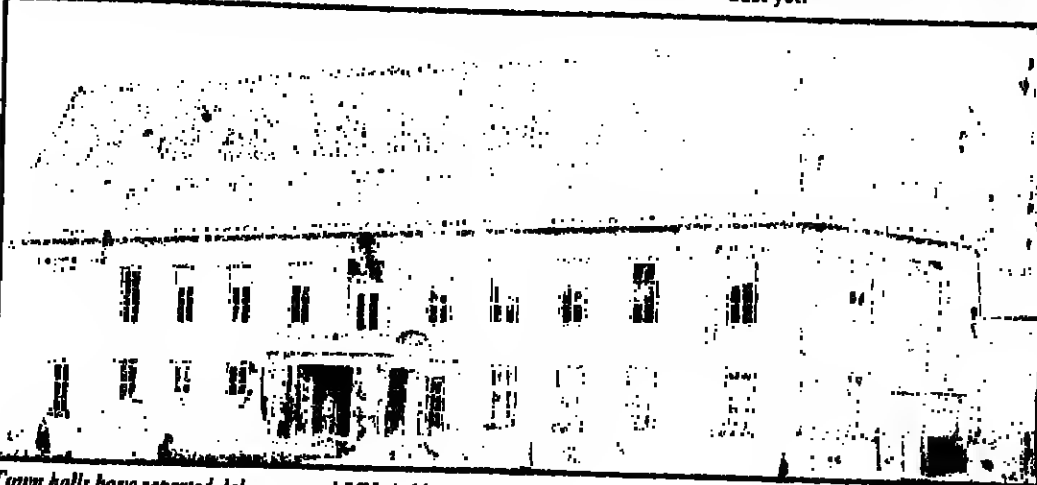
The point was to illustrate British Telecom's wisdom and foresight in these matters. In the current context this meant realising that BT had led the way in pointing out how demands for bandwidth in homes and offices would soon outstrip the capacity of the telephone line to satisfy what was needed was a single integrated wideband network to de-

liver the full range of communications services.

In the new situation being created by the government, it was impossible to know what national communications would be required between local cable networks, let alone, and the only way to cater for all possibilities quickly and flexibly enough was to use satellites.

To that end, BT was already negotiating with Eutelsat and Intelsat to ensure capacity would be available in the near-term and was planning to use Unisat - the satellite to be launched by the consortium of BT, British Aerospace and GEC-Marconi - from 1986.

Cable 83 was claimed to be the first conference and exhibition in Europe to concentrate on cable network issues. More than 450 delegates attended.



Town halls have reported delays - and ICL is blamed.

Plessey pips GEC to £10m deal

by Philip Hunter

PLESSEY has beaten GEC to the £10 million contract for a new computerised exchange to serve London's 25,000 telex subscribers.

But British Telecom says this will be the last contract for stored program control telex exchanges unless there is a surprise increase in the present total of 90,000 UK telex users.

BT's modernisation programme to replace UK telex exchanges was due for completion in 1990. But

competition from teletex is likely to hot up in 1984 when BT makes a gateway available to allow terminals to link with the telex network from an ordinary telephone.

Plessey hoped more contracts would follow last month's London deal. It has already been beaten to the lion's share of BT's telex exchange replacements by GEC, with a £24 million contract to supply 10 smaller exchanges outside London, but had announced a new range of telex ex-

changes, the 8000 series.

New facilities, including the ability to send one message to many destinations with just one call, were enough to win BT's favour for the London exchange.

The 8000 is based on a range of minicomputers made by General Automation. Plessey this month announced an order worth £750,000, for 49 of the computers which, with bit-slice technology and gate array logic chips, are ideal for controlling telex exchanges.

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More importantly, when asked whether they were likely to buy a personal micro during the next

year over 76% of the respondents did not think so. Of the remaining, only 10% thought it very likely that they may become micro owners.

However, the likelihood of purchasing a personal microcomputer was greater over the next two years but even in the longer run over 56% still did not think it likely that they would succumb to the temptation despite publicity blitzes.

The survey also revealed that almost 43% of those surveyed have operated a personal microcomputer and 26% of the businesses in which they worked had personal computers installed in the premises. Even so, 28% of the re-

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The announcement hotly up the

by Nuala Moran and Kevin Cahill

THE UK subsidiary of American-owned computer company Microdata, formerly CMC, has announced a £10 million investment in a research and development and manufacturing plant which will create 300 jobs. These will be for systems engineers and electronic test specialists. Jerry Causeley, managing director, also announced plans for continued growth in the sales and service centres in Belfast, Birmingham, Bristol, Dublin, Edinburgh, Glasgow, Manchester, Dunstable and Wakefield.

The company is expanding in Europe too. Within the last 12 months subsidiaries have started trading in Germany and Switzerland and subsidiaries are being

established in eight more European countries. The UK manufacturing facility will be the source for most of the product requirements of these outlets.

Microdata also announced record profits of £6.8 million, up from £1.8 million. Sales jumped 55% to reach £35 million. At the same time according to Causeley, "Exports of UK-built minicomputers from the Hemel Hempstead manufacturing plant rose by 80% to over £6 million, and this included £1.2 million of exports to the US." The British plant is one of three manufacturing centres for Microdata.

Prospects for 1983 look good, with deliveries of the Reality Series 8000 and the Sequoia 32-bit super minicomputers up by over

50% and a 23% increase in orders to £13.5 million compared to the same quarter in 1982.

Investment in new technology includes work on a natural language, artificial intelligence type interface for data bases called Supernatural. Research in the UK is being carried out in conjunction with Microdata engineers based in Irvine, California. More than £6 million has so far been spent on the package, which is expected to be available in the UK within the next 12 months.

Causeley said that Microdata had changed its name from Computer Machinery Limited (CMC) because its European expansion will be directed from the UK and the company did not own the CMC name in several countries.

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RULE... Looking for dealers.

Philip Rule, UK chairman of Safe, said: "We are expecting turnover in North America of at least \$500,000 in the financial year which began April 1983." Safe intends that the Toronto office will be a basis for further growth and will be appointing more dealers in America.

Safe had a change in the composition of its ownership in August last year after the company had losses of over £200,000 in 1981-82, on a turnover as promising £3.1 million. As a result of the subsequent cash crisis, security company, Chubb, which had a major stake in Safe, converted its loans to Safe into a mixture of secured loan stock and redeemable preference shares.

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and surrounding countryside

MICRO NEWS

Cut-price local area network

CHIP maker Intel and computer builder NCR have put their heads together to bring out a cut-price local area network (LAN) called - for mid-range local area networks - is intended to fill a price-performance gap while complementing the up-market Ethernet also sponsored by Intel.

The design of Miran is based on the same media access techniques as the 10 Mbit per second Ethernet, but tuned to operate at 1 Mbit per second and to come in at around one-fifth the price of Ethernet. Intel's contribution will be to develop variants of its 82586 VLSI controller chip aimed at the lower speed, lower cost LANs.

The 82586 is presently being sampled, says Intel vice-chairman Robert Noye, and is aimed at Ethernet and its variant adopted for a standard by the Institute of Electrical and Electronic Engineers.

NCR's part in the project was in the design of the transceiver. Its intention is to make Miran an "open interconnection" with the necessary information to implement a Miran interface.

Micro you can carry anywhere

by Andrew Thomas

PORTABLE computers look like being one of this year's big talking points - but what is portability? A Cray 1 is portable in the strictest sense of the word - you can move it around in a truck and use it where there happens to be a three-phase power supply and an air-conditioned environment.

Some so-called portable micros are little better than mainframes when it comes to moving them around. They still need mains power, and few have non-volatile memory or battery-backed-up RAM. In many cases, the portable micro is simply a desk-top machine with a carrying handle and a free Charles Atlas course to enable you to pick it up.

A truly portable computer should be able to run on aircraft, boats and in the middle of fields. It should be totally self-contained and weigh as little as possible.

The machines which fit this category and can truly be called business tools can be numbered on the fingers of one hand.

So the arrival of a 16-bit, nine-pound micro capable of running for eight hours on its internal power pack can only be welcomed. And if it should also be IBM PC compatible, so much the better.

The Gavilan is all of these things. The Californian company which bears the same name as its first product was formed in early 1982, and has since raised \$8.5 million of venture capital. Despite



FERNANDEZ... "We designed the architecture before we built the house."

having four ex-Zilog men in its upper echelons, Gavilan has gone for the Intel 8088 chip for the portable, which runs standard MS/DOS plus development systems for both Basic and Pascal.

Applications software is available either on diskette or plug-in modules, and covers word processing, spreadsheets, communications and mail, forms processing, and a diary system.

The main unit of the Gavilan is 11in square and 2.5in thick, and features eight lines of 66 characters, liquid crystal display and 80 Kbytes of mainstore expandable by 32K increments to a maximum of 336K. An optional correspondence quality printer can be used as a standalone unit or attached to the main unit, adding another five inches to its depth.

First shipments will start in November, and the machine is expected to be in full production by the end of the year.

Software for the Gavilan was designed first, and the hardware was built around it.

Company president Manny Fernandez explains why: "We designed a completely integrated system built around the software. We designed the architecture before we built the house."

Cifer 16-bit takes 68000/Unix route

by Nuala Moran

CIFER has found the 68000/Unix route for 16-bit microcomputer.

The 16-bit board is an add-on option to existing Cifer micros, which means it can be factory fitted as an option or retrofitted to any Cifer Series 1 with an IEEE 488 interface.

The 68000 board, with a minimum of 256K RAM adds to the present multi-processor

system, which has Z80As handling floppy disc control, and the video screen and keyboard. It is possible to add another Z80A to handle high resolution graphics. The processors are interconnected by a bus based on the international standard IEEE 488.

"Cifer's use of a modular approach means a buyer can do an easy upgrade from an eight-bit to a 16-bit," said marketing manager Peter Readman. "However, changeover to a 16-bit doesn't mean a loss of the eight-bit capability. It also means users still have access to application software that has been written for CP/M."

Manufacturing capacity has been doubled at Cifer's Melksham factory, at a cost of £30,000.

Cifer announced record results for the year ended September 1982. Turnover almost doubled from £2.73 million to £5.26 million. Profits were up from £248,000 to £840,000, with £400,000 going in to capital investment.

Managing director Terry Cosgrave said: "The company's position as a pre-eminent force among British terminal and microcomputer manufacturers is reinforced by these results, and current investment strategies will ensure that this position is further strengthened." Turnover for 1983 is on target for £8.5 million.



COSGRAVE... Reinforced.

Insure your own micro

by Nuala Moran

INSURANCE broker Graham Brown and Co has introduced a scheme to cover personal computers and peripherals in the home, in educational establishments and while in temporary use at the office.

The policy provides an all risks cover against internal breakdown and accidental loss or damage, including damage during transit. It costs £7.50 a year to insure a system worth up to £100, and increases according to the value of the system. For a £500 system the annual cost is £15. Policies cannot be taken out on any equipment more than two years old.

Chris Bower, a director of Graham Brown said: "If the price of a computer drops into a lower price band than the price of the policy will fall too."

By the middle of this year 50% of all personal computers in the UK will be beyond the protection of the manufacturer's guarantee.

Bower said: "There are almost a million personal computers in use in this country today. In a rapidly expanding market such as this, with another million computer expected to be sold this year, manufacturers have little incentive to offer extended guarantees."

If an insured computer needs to be repaired the owner can take it to the engineer of his choice and then forward the bill to the insurance company. In the case of repair being impossible due to obsolescence the owner will receive the write-off value of the machine.

Bower added: "So far there has been a slow response from personal computer owners to this scheme. This is probably because the majority of machines are still under the manufacturer's guarantee, and people are not aware of the cost of repairs. However, we have also circulated dealers and have had a strong response from them asking for information to display in their shops."

SOFTWARE FILE

Microsoft enters the mouse race

MICROSOFT is following Apple and VisiCorp into the brave new world of mice. The US authors of the MS-DOS operating system have announced an electronic cursor tracking device similar to that which received a flood of publicity when launched by Apple for its high-powered 16-bit Lisa micro.

And Microsoft has accepted as definitive the term mouse which Apple coined for describing its pointer.

The Microsoft version, which has two control buttons instead of Lisa's one, and can operate on any flat surface, was introduced to OEMs last week at a London seminar, presided over by chairman Bill Gates.

The company's view is that personal computers are moving steadily towards a graphics orientation, with application progress using the mouse instead of a keyboard as the primary user interface.

It has chosen the mouse rather

than a digitiser, light pen or track ball because it thinks it both faster and more accurate. The IBM-PC version, priced at \$195, will be available at the end of the month and other machines will be able to offer it from June.

First application program to be issued with it is the new Multi-Tool Word, a word processing business package. Among the features which Microsoft claims make it the simplest and most powerful tool of its kind is an "undo" command giving novices confidence in the reversibility of their instructions if they make a mistake.

The individual workstation is the largest computing market and requires the greatest innovation to maximise its productivity, Gates told delegates.

Software companies, to be successful, needed not only to

innovate but to sell at least 100,000 units per package worldwide, he said. The spread of the 16-bit machine had been very rapid - Apple 11's \$5,000 users was a very small number compared to what was happening in the 16-bit world.

And this was leading to the emergence of standards. The "biggest three" - IBM, Tandy and Apple - in micro world had now all acknowledged the importance of standards.

"This means there are now not so many niches to compete in," he argued. Asked about the future he said: "There should be as many operating systems as there are record player formats."

Microsoft does not intend to attack the expanding "vertical" (industry-specific) markets, but envisages a great variety of software firms using its tools to exploit those fields.

Software File is compiled by George Black.



GATES... Individual workstation is the largest computing market.

Micro Focus set to run RIMS around Britain

MICRO Focus has reached an agreement in the US with ILS, authors of the RIMS/MPG application program generator, which could lead to the software development tool being installed on a range of micros.

Micro Focus isn't actually going to distribute RIMS, but, in the words of marketing manager Peter Hewitt, wants to act as a "catalyst" to make such software available in the new range of 16-bit machines.

The deal, aimed primarily at the OEM market, is the first fruit of a set of talks Micro Focus is holding with several software houses which have developed productivity aids.

Business manager Paul O'Grady was particularly enthusiastic about RIMS, from Information and Systems Research. It was originally written as a DEC minicomputer program generator by ex-DEC staff programmer Rick Rnith.

European distributing rights for RIMS on DEC gear were recently acquired by Delfont Computing in Surrey.

Micro Focus' marketing manager Peter Hewitt said it was not the company's intention to distribute RIMS in the UK, but it wanted to act as a catalyst to make such software available on the new range of 16-bit machines.



RODWAY... Best solution.

Improved SDS is on the way

AN IMPROVED and more user-friendly version of SDS, Software Sciences' much-acclaimed development tool, will be issued next year. Software technical director David Rodway said: "Next year's model is already a long way down the production line."

SDS was found by a recent government report to be "the best solution available in the UK today for a software development database". SDS is expected to be used during the Mchape project, a collaborative venture between SS, SPL, SDL and ICL to develop an Ada and C++ environment over the next 14 years.

Rodway said: "Software Sciences intended to use intelligent knowledge-based systems for solving design problems."

Codewriter plans for Commodore

DYNATECH Microsoftware is on the verge of a deal with Commodore to put its Codewriter program generator on its Series 8000 and 64 micros. Talks had reached "an advanced stage" this week in the US, according to John Marjoribanks, of the firm's UK office.

The Guernsey-headquartered firm wants Commodore to adopt the product, which has also been made available on IBM's PC and will be brought to the Sirius/Vector machine in the near future. A version to run under the CP/M operating system from Digital Research is being developed for a launch during June.

The micro software organisation is a subsidiary of Dynatech Corp of Boston.

The market for micro generators is booming up, with the dBase-11 front-end Autocode from Stemma gaining a foothold.

Autocode has achieved 400 sales in the US since its introduction.

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The product is fully supported throughout Europe and all major countries. For further information contact Modern Sales, Plessey Controls Limited, Soper Lane, Poole, Dorset, United Kingdom BH17 7ER. Telephone Poole (0202) 675161, Telex 41272.

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San Francisco... the Golden Gate to finance.

"NEXT year," the lady said, "We'll have to televise it. Coast to coast and by satellite, to London, Paris, Munich and Rome," she only half jokingly continued. The woman in question was Carol Mueller, organizer of the biggest computer financing show on earth, the Hambrecht & Quist annual technology conference. The event was held this year at the Queen's temporary residence, the San Francisco, the St Francis Hotel. It brought together for the eleventh time a clutch of America's most adventurous computer companies, and the men and women who financed

and who will go on financing that country's dominant position in the information technology age. On these two pages, Kevin Cahill highlights the conference. Hambrecht & Quist is a cross between a bank, a stockbroker and a marriage bureau. What started out as a high risk

financing business in the late Sixties has now become respectable, and a virtual national American institution. But its function is still the same, to bring together high technology entrepreneurs and institutions and individuals with money to invest. Apple and Intel are among its "finds".

Cray announces research projects

Two super computers on the way

CRAY Research is nothing if not eclectic. It isn't building one super computer, it's building two. When John Carlson took the H & Q technology conference that Cray Research was currently investing in two separate research projects, each aimed at producing a supercomputer one generation on from the Cray 2, all but the most financially faint-hearted should have run for it.

Instead, they applauded the Cray Research president's confident presentation of what was truly the technology high point of the week.

According to Carlson, the first Cray 2 will be delivered to a customer next year, and the first X-MP machine will be delivered in the last quarter of this year. The Cray 2 is a vector processor designed and built by Seymour Cray. It is the non-compatible successor to the 100 mips Cray 1, and has mips equivalent speed of 600 to 1,200. The X-MP, designed by Steve Chae who is Seymour Cray's successor within the company, is a Cray 1 compatible computer which runs at speeds between 200 and 500 mips.

According to Carlson, the company will invest about 15% of sales in R&D this year. Seymour Cray, who founded the company and for several years was chairman, gets 5% of the money with no constraint except performance. Steve Chae gets 5% of the money with compatibility as a constraint, and the final 5% goes on software and peripherals development.

This clearly indicates that Cray Research is setting out on the one hand to establish itself as a business based on the supply of the Cray 1 and its X-MP successor compatible machines, while retaining faith in its founder's belief that if you build the fastest computer in the world, people will beat a path to your door to buy it.

As yet no details at all on the Cray 3, as it has so far been referred to, are available.

The fact there is no way of knowing what direction Seymour Cray will take with this machine, which, if it follows in the footsteps of the Cray 2, will run at anything from 5,000 to 10,000 mips.

Callium arsenide, a frequently mentioned technology by Cray Research, and for which the company has recruited a number of staff, seems more likely to be used in the Cray 3. The Cray 2 has a cycle time of 12.5 nanoseconds. While GA does represent a big speed gain on Silicon MOS, it probably is not fast enough to achieve the quantum leap that Seymour Cray will be looking for in his next machine.

According to Carlson, there is now a user base of 50 Cray machines in the world, many of them in Europe and Japan. This year Cray Research hopes to deliver 16 Cray machines, four of them to France.

By early next year CR will be delivering the XMP at the rate of one each month. If Carlson achieves those deliveries he may very well beat the analysts' forecasts of turnover of \$175 million and profits of \$25.9 million for 1983.



CRAY... Quantum leap.

COMPANY NEWS

Is a useful thinking machine set to emerge?

WHEN Bill Parry says that artificial intelligence and expert systems are the way of the future there are three good reasons for listening to what he says. First of all he is the man who signed the order that started the programming language Ada into existence. He did that when he was secretary of the US Department of Defence, a post which gave him access to some of the most advanced and secret computer research in the world — which is the second reason why he is worth hearing.

The third is that he is now chairman of Hambrecht and Quist and as such he is now the chief policy

maker for a company which has organised the funding of more than half of the US computer industry.

When he spoke at lunch during the H & Q Technology Conference, he may have said more than he intended when he told his audience that after two decades of development the "thinking machine" is about to emerge as a useful product.

While he would seem to have been reflecting a degree of insight derived from his days in charge of the military, he was also pointing the finger at least three companies which gave presentations which for financial reasons were closed to the Press.

The first of the companies to speak to investors was Cognitive Systems Inc. This company was set up three years ago by Roger Schank, chairman of Yale University's computer science department. The objective was to commercialise artificial intelligence research through the development of customised natural language databases and advisory expert systems.

Schank's approach was an unusual one in that the route he took to developing "expert systems" was the logical but not frequently used one of actually trying to understand human intelligence and how it functioned. This route is unusual if only because the difficulties involved in trying to understand the functioning of the human brain have so far defeated most attempts at discovery.

Most developments in artificial intelligence and expert systems have been evolved on the basis of

developing a system which would reach the same conclusion as human intelligence without necessarily using the same logic.

In fact the test for intelligence developed by Alan Turing and referred to by Bill Parry in his presentation works without any reference to how the brain functions.

For those who have forgotten the Turing test, it consists of placing a tester at a terminal with which he communicates with a human and artificial intelligence system. If the tester cannot tell which is which, we can, according to Turing, say that we have developed artificial intelligence.

Schank's group, now a company which will shortly be placing shares or going public if its presence at the H & Q conference means anything, is drawing on the experience it gained during its research into linguistics, psychology and computer science to produce marketable advisory systems and natural language front ends.

One product has already emerged and is currently doing useful work for an oil company in the US. This is "explorer", a natural language front end to various databases containing data on thousands of oil wells.

Geologists are able to access the databases via the English language in order to obtain combinations of data which are otherwise difficult to retrieve but which contain vital information on unexplored wells or underdeveloped fields.

While Cognitive Systems may not be quite ready for its Stock Market debut, Larry Harris's Artificial Intelligence Corporation, with its product installed in over

100 corporations, is reportedly a good deal closer to going public.

Harris and his company have been in the commercial artificial intelligence game a bit longer than most of the other potential entrants, having started development work in 1975. Nonetheless it took Harris six years to get his first product, a natural language front end product enabling existing programs written in languages like Cobol, Fortran and Pascal to understand questions addressed in ordinary English.

The package, called Intellect, has had a very rapid take-off, with installations in over 100 companies. Harris and his team are now embarked on a major development programme aimed at providing a natural language colour graphics interface, and a natural language interface for personal computers. The latter development is seen as a significant future profit generator, particularly as AIC's main dealer, Cullinet, has just done a deal with Apple to provide Apple personal micros with the Cullinet local area network.

And there is a third American company about to dive into artificial intelligence. This time the parent academic institution is MIT, and represents a fair amount of the talent that went into the production of the logic programming language Lisp. Headed by Russel Neftci, the Symbolics team first of all developed the LMI2 a \$100,000 symbol processing computer (see Workplace, page 18). A few of these machines have appeared in the UK but the high price is a deterrent.



OLSEN... Streamlining the marketing organisation.

DEC investors get some silver linings

BRING the second biggest computer company in the world has not discouraged Digital Equipment Corporation from appearing among the minnows, even if the financial story from the number two didn't have quite its usual glow.

In the wake of a slowdown in profits in the second quarter, the company reported third quarter ended March 30, profits of \$79.7 million, against profits of \$107.5 million for the third quarter of 1982.

Turnover rose 10% on the same period in 1982, to \$1,094 million compared with \$999.2 million. All this gave DEC finance vice-president Al Mullio and his team of investor relations managers a good opportunity to add some silver linings to the otherwise dark clouds.

According to Mark Steinkrauss, DEC's investor relations manager, one of the reasons for the slowdown in profits was that the company had some delays in getting production of the personal micros fully ramped up, and there was also a shortage of software for the top-end micro the Professional.

That situation was now ended, and the escalators in the audience flashed as Steinkrauss revealed that DEC had shipped 16,000 personal micros in the first three months of the year, and expected to ship about 2,000 a week later in the year.

What this means to the assembled investors is that in one year flat DEC will have shipped well over \$100 million worth of small micros from a range which, unlike IBM's, is internally and upwardly compatible.

From this base — and most of the audience clearly read the message Steinkrauss was giving — DEC intends to directly challenge IBM.

The battle between the two giants, which is normally confined to the upper end of the DEC range, was initiated by IBM at the bottom

end with its Personal Computer. However, by being first into the field with a single product which was not upwards compatible with the rest of the IBM range, and by failing to develop a range of differently priced and configured models to surround its initial offering, IBM left itself open to charges of 'opportunism' rather than planned marketing.

The openings around the IBM machine have been carefully exploited by DEC, and the high level of production, which is more than six months behind orders in some cases if the UK is anything to go by, indicates that DEC is establishing a winning position in the lower end of the market despite its late arrival there.

Steinkrauss also told the audience that DEC had won a huge order from Stevens University in New Jersey, which would be insisting that every undergraduate starting their next year would have to arrive equipped with a DEC Professional. There are very real prospects that MS-DOS will be available on the DEC range from next month, although Steinkrauss did not make clear whether the IBM compatibility would be supplied by DEC, or by one of the thousands of small software houses now joining the queue to supply software for the DEC micros.

While this philosophy conforms to the idea once articulated by DEC president Ken Olsen that the company should offer opportunities for others to become rich, there is plenty of evidence that DEC intends to be a participant in the market for software for its own machines.

For the immediate future, Steinkrauss saw DEC developing a video disc based memory system for the professional which would also have a voice input device.

Both of these offerings would be announced within the next few months, according to Steinkrauss.

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Analysts see \$21m losses at NatSemi

NATIONAL Semiconductor, America's number two independent semiconductor manufacturer, had a bad year last year. The company lost \$10.7 million on turnover of \$1.1 billion and this year the analysts are forecasting losses of \$21.6 million on turnover of \$1.2 billion.

Executive vice-president, John Finch, went a long way to confirm the gloomy predictions when he told the financiers that in Europe in particular, the NatSemi results would stay depressed.

He blamed much of the poor performance in Europe on currency fluctuations of weak European money into a strong dollar, but this wasn't the only problem.

Last year NatSemi closed down the Santiago production plant of its wholly owned subsidiary National Advanced Systems at a cost of \$9 million. Finch said that NatSemi had made the decision to close the plant as it had come up with a competitive product to NAS' own machine. In Europe NAS' own machine, the 256K EPROM, the original IBM plug com-

patible company, by a factor of 5.5 to one, and in the US outside Am-dahl by a factor of 2.9 to one.

The company would be adding a successor to the NAS 7000 this month in the form of an Hitachi produced processor with twice the speed of the 7000, said Finch.

While making optimistic noises about the semiconductor market in general and noting that the 16-bit microprocessor market in 1983 will be worth \$2.3 billion in turnover, Finch also dropped the little bombshell that NatSemi would be getting into the 256K DRAM market by supplying Old Data chips. The first of the Japanese 256K DRAMs would be available in volume in the first quarter of 1984, and the 256K EPROM would follow in the second quarter next year.

Olivetti

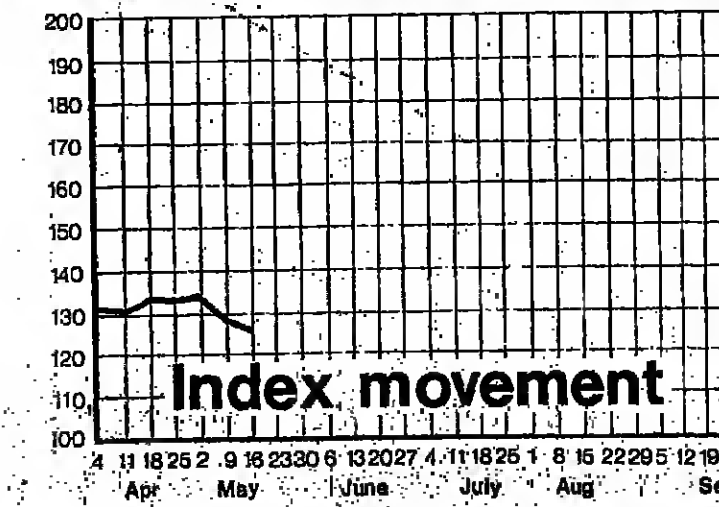
SALES at British Olivetti are expected to be up 20 per cent to £70 million for the year ending December 1983. Due to a printing error, the figure was quoted as £40 million in last week's issue.

SHARES TABLE

The shares table, which is specially compiled for Computer Weekly, shows selected computer companies that reflect the state of the computer industry.

1983			1982			1981			1980		
Price	High	Low	Price	High	Low	Price	High	Low	Price	High	Low
408	240	170	408	240	170	408	240	170	408	240	170
250	170	120	250	170	120	250	170	120	250	170	120
190	120	80	190	120	80	190	120	80	190	120	80
150	80	40	150	80	40	150	80	40	150	80	40
120	40	20	120	40	20	120	40	20	120	40	20
100	20	10	100	20	10	100	20	10	100	20	10
80	10	5	80	10	5	80	10	5	80	10	5
60	5	2	60	5	2	60	5	2	60	5	2
40	2	1	40	2	1	40	2	1	40	2	1
20	1	0	20	1	0	20	1	0	20	1	0
10	0	0	10	0	0	10	0	0	10	0	0
5	0	0	5	0	0	5	0	0	5	0	0
2	0	0	2	0	0	2	0	0	2	0	0
1	0	0	1	0	0	1	0	0	1	0	0
0	0	0	0	0	0	0	0	0	0	0	0

The table shows the closing prices in London on Friday and in America on Thursday. The shares index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted where necessary.



NBI — high flier that took a nosedive

NBI, one of Hambrecht's real fliers, suddenly came unstuck last quarter. NBI's Thomas Kavanagh explained that most of the loss had hit the company because of a change in the commission plan for his sales force. He made no mention of the loss of the Case dealership in the UK, which some commentators felt had more than a passing bearing on the company's situation.

The loss in the first quarter, which came to \$3.5 million, certainly took investors by surprise and NBI stock fell to \$19.5 from a high of \$30.

Undeterred by the events of the first quarter, which included a too-relaxed attitude by the salesforce, who were focusing too strongly on existing customers and not concentrating on new business, Kavanagh was full of optimism for the future. He described the business as insatiable from the need for more cash for one to two years, and he said that the banks had provided a \$100 million line of credit to back up the \$40 million in cash and \$80 million in working capital the company was carrying on the books.

Kavanagh conceded that there had been some customer defections

as news of the new cluster products and the 4000 top end word processor leaked out.

NBI, which specialises in the low end office market, and which has an extensive range of word processors and linked workstations, spent much of last year preparing hardware and software to link up the company's various offerings and to enable previously unconnected devices to act as a networked office system.

One aspect of the difficulty Kavanagh encountered was the breach with Case. Case, the Hemel Hempstead-based communications company, took on the UK distribution of the NBI systems and backed out of the deal with an almost £1 million write-off when the communications software for the various products would not work.

This event, which led to a return payment to Case of about £750,000 and to the settling up by NBI of its own distribution system in the UK, went largely unremarked in the US.

NBI has grown from turnover of \$32.9 million in 1980, to turnover of \$7.6 million in 1981 and almost doubled again to \$100 million in 1982.

What this means to the assembled investors is that in one year flat DEC will have shipped well over \$100 million worth of small micros from a range which, unlike IBM's, is internally and upwardly compatible.

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San Francisco... the Golden Gate to finance.

"NEXT year," the lady said, "We'll have to televise it. Coast to coast and by satellite, to London, Paris, Munich and Rome." The woman is jokingly continued. Carol Mueller, organizer of the biggest computer financing show on earth, the Hambrecht & Quist

annual technology conference. The event was held this year at the Queen's temporary residence in San Francisco, the St Francis Hotel. It brought together for the eleventh time a clutch of America's most adventurous computer companies, and the men and women who financed

and who will go on financing that country's dominant position in the information technology age. On these two pages, Kevin Cahill highlights the conference. Hambrecht & Quist is a cross between a bank, a stockbroker and a marriage bureau. What started out as a high risk

Cray announces research projects

Two super computers on the way

CRAY Research is nothing if not eclectic. It isn't building one super computer, it's building two. When John Carlson told the H & Q technology conference that Cray Research was currently investing in two separate research projects, each aimed at producing a supercomputer one generation on from the Cray 2, all but the most financially faint-hearted should have run for it.

Instead, they applauded the Cray Research president's confident presentation of what was truly the technology high point of the week.

According to Carlson, the first Cray 2 will be delivered to a customer next year, and the first X-MP machine will be delivered in the last quarter of this year.

The Cray 2 is a vector processor designed and built by Seymour Cray. It is the non-compatible successor to the 100 mips Cray 1, and has mips equivalent speed of 600 to 1,200. The X-MP, designed by Steve Chan who is Seymour Cray's successor within the company, is a Cray 1 compatible computer which runs at speeds between 200 and 500 mips.

According to Carlson, the company will invest about 15% of sales in R&D this year. Seymour Cray, who founded the company and for several years was chairman, gets 5% of the money with no constraint except performance. Steve Chan gets 5% of the money with compatibility as a constraint, and the final 5% goes on software and peripheral development.

This clearly indicates that Cray Research is setting out on the one hand to establish itself as a business based on the supply of the Cray 1 and its X-MP successor compatible machines, while retaining faith in its founder's belief that if you build the fastest computer in the world, people will beat a path to your door to buy it.

As yet no details at all on the Cray 3, as it has so far been referred to, are available.

In fact there is no way of knowing what direction Seymour Cray will take with this machine, which, if it follows in the footsteps of the Cray 2, will run at anything from 5,000 to 10,000 mips.

Gallium arsenide, a frequently mentioned technology by Cray Research, and for which the company has recruited a number of staff, seems more likely to be used in the X-MP successor range than in the Cray 3. The Cray 2 has a cycle time of 12.5 nanoseconds. While GA does represent a big speed gain on Silicon MOS, it probably is not fast enough to achieve the quantum leap that Seymour Cray will be looking for in his next machine.

According to Carlson, there is now a user base of 50 Cray machines in the world, many of them in Europe and Japan. This year Cray Research hopes to deliver 16 Cray machines, four of them to France.

By early next year CR will be delivering the XMP at the rate of one each month. If Carlson achieves those deliveries he may very well beat the analysts' forecasts of turnover of \$175 million and profits of £25.9 million for 1983.



CRAY... Quantum leap.

Analysts see \$21m losses at NatSemi

NATIONAL Semiconductor, America's number two independent semiconductor manufacturer, had a bad year last year. The company lost \$10.7 million on turnover of \$1.1 billion and this year the analysts are forecasting losses of \$21.6 million on turnover of \$1.2 billion.

Executive vice-president, John Finch, went a long way to confirm the gloomy predictions when he told the financiers that in Europe in particular, the NatSemi results would stay depressed. He blamed much of the poor performance in Europe on currency translation of weak European money into a strong dollar, but this wasn't the only problem.

Last year NatSemi closed down the Santiago production plant of its wholly owned subsidiary National Advanced Systems at a cost of \$9 million. Finch said that NatSemi had made the decision to close the plant after Hitachi had come up with a competitive product to NAT's own machine. In Europe, NAT's only rival, AMDahl Corp, the original IBM plug com-

patible company, by a factor of 5.5 to one, and in the US outlast AMDahl by a factor of 2.9 to one.

The company would be adding a successor to the NAS 7000 this month in the form of an Hitachi produced processor with twice the speed of the 7000, said Finch. While making optimistic noises about the semiconductor market in general and noting that the 16-bit microprocessor market in 1983 will be worth \$2.3 billion in turnover, Finch also dropped the little bombshell that NatSemi would be getting into the 256K DRAM market by supplying Oki Data chips. The first of the Japanese 256K DRAMs would be available in volume in the first quarter of 1984, and the 256K EPROM would follow in the second quarter next year.

Olivetti

SALES at British Olivetti are expected to be up 20 per cent to £70 million for the year ending December 1982. Due to a printing error, the figure was quoted as £40 million in last week's issue.

COMPANY NEWS

Is a useful thinking machine set to emerge?

WHEN Bill Parry says that artificial intelligence and expert systems are the way of the future there are three good reasons for listening to what he says. First of all he is the man who signed the order that started the programming language Ada into existence. He did that when he was secretary of the US Department of Defence, a post which gave him access to some of the most advanced and secret computer research in the world - which is the second reason why he is worth hearing.

The third is that he is now chairman of Hambrecht and Quist and as such he is now the chief policy

maker for a company which has organised the funding of more than half of the US computer industry.

When he spoke at lunch during the H & Q Technology Conference, he may have said more than he intended when he told his audience that after two decades of development the "thinking machine" is about to emerge as a useful product.

While he would seem to have been reflecting a degree of insight derived from his days in charge of the military, he was also pointing the finger at least three companies which gave presentations which for financial reasons were closed to the Press.

The first of the companies to speak to investors was Cognitive Systems Inc. This company was set up three years ago by Roger Schank, chairman of Yale University's computer science department. The objective was to commercialise artificial intelligence research through the development of customised natural language database interfaces and advisory expert systems.

Schank's approach was an unusual one in that the route he took to developing "expert systems" was the logical but not frequently used one of actually trying to understand human intelligence and how it functioned. This route is unusual only because the difficulties involved in trying to understand the functioning of the human brain have so far defeated most attempts at discovery.

Most developments in artificial intelligence and expert systems have been evolved on the basis of

developing a system which would reach the same conclusion as human intelligence without necessarily using the same logic.

In fact the test for intelligence developed by Alan Turing and referred to by Bill Parry in his presentation works without any reference to how the brain functions.

For those who have forgotten the Turing test, it consists of placing a tester at a terminal with which he communicates with a human and artificial intelligence system. If the tester cannot tell which is which, we can, according to Turing, say that we have developed artificial intelligence.

Schank's group, now a company which will shortly be placing shares or going public if its presence at the H & Q conference means anything, is drawing on the experience gained during its research into linguistics, psychology and computer science to produce marketable advisory systems and natural language front ends.

One product has already emerged and is currently doing useful work for an oil company in the US. This is "explorer", a natural language front end to various databases containing data on thousands of oil wells.

Geologists are able to access the databases via the English language in order to obtain combinations of data which are otherwise difficult to retrieve but which contain vital information on unexplored wells or underdeveloped fields.

While Cognitive Systems may not be quite ready for its Stock Market debut, Larry Harris's Artificial Intelligence Corporation, with its product installed in over

100 corporations, is reportedly a good deal closer to going public.

Harris and his company have been in the commercial artificial intelligence game a bit longer than most of the other potential entrants, having started development work in 1975. Nonetheless it took Harris six years to get his first product, a natural language front end product enabling existing programs written in languages like Cobol, Fortran and Pascal to understand questions addressed in ordinary English.

The package, called Intellect, has had a very rapid take-off, with installations in over 100 companies. Harris and his team are now embarked on a major development programme aimed at providing a natural language colour graphics interface, and a natural language interface for personal computers. The latter development is seen as a significant future profit generator, particularly as AIC's main dealer, Cullinet, has just done a deal with Apple to provide Apple personal micros with the Cullinet local area network.

And there is a third American company about to dive into artificial intelligence. This time the parent academic institution is MIT, and represents a fair amount of the talent that went into the production of the logic programming language Lisp. Headed by Russel Nofaker, the Symbolics team first of all developed the LM2, a \$100,000 symbol processing computer (see Workplace, page 18). A few of these machines have appeared in the UK but the high price is a deterrent.

NBI - high flier that took a nosedive

NBI, one of Hambrecht's real fliers, suddenly came unstuck last quarter. NBI's Thomas Kavanagh explained that most of the loss had hit the company because of a change in the commission plan for his sales force. He made no mention of the loss of the Case dealership in the UK, which some commentators feel had more than a passing bearing on the company's situation.

The loss in the first quarter, which came at \$3.5 million, certainly took investors by surprise and NBI stock fell to \$19.5 from a high of \$50.

Undeterred by the events of the first quarter, which included a too-released attitude by the salesforce, who were focusing too strongly on existing customers and not concentrating on new business, Kavanagh was full of optimism for the future. He described the business as insulated from the need for more cash for one to two years, and he said that the banks had provided a \$100 million line of credit to back up the \$40 million in cash and \$80 million in working capital the company was carrying on the books.

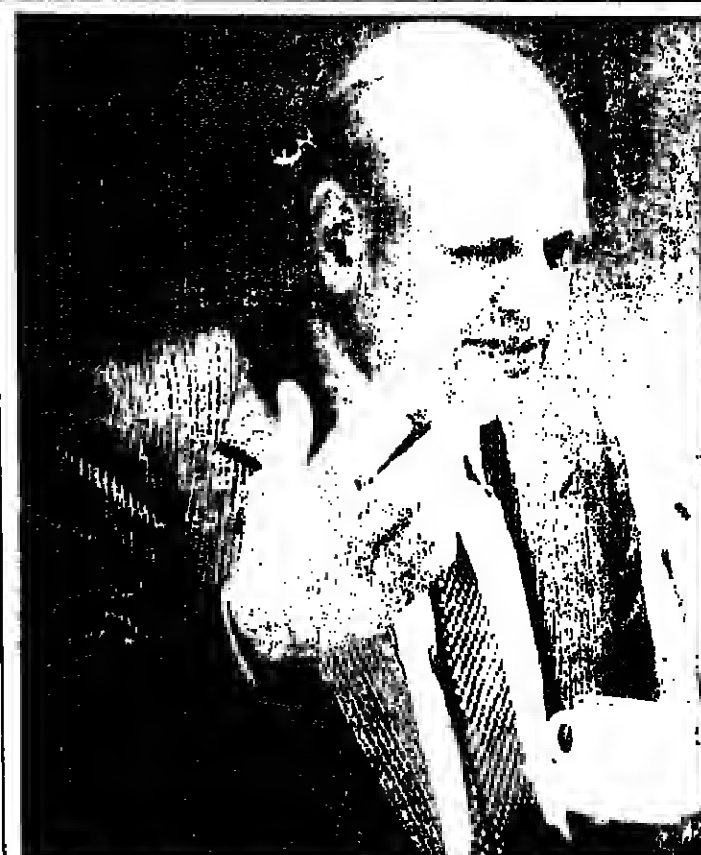
Kavanagh conceded that there had been some customer deferrals

as a result of the new cluster product and the 4000 top end word processor leaked out.

NBI, which specialises in the low end office market, and which has an extensive range of word processors and linked workstations, spent much of last year preparing hardware and software to link up the company's various offerings and to enable previously unconnected devices to act as a networked office system.

One aspect of the difficulty Kavanagh encountered was the breach with Case. Case, the Hemel Hempstead-based communications company, took on the UK distribution of the NBI systems and backed out of the deal with an almost £1 million write-off when the company discovered that the communications software for the various products would not work. This event, which led to a return payment to Case of about £750,000 and to the setting up by NBI of its own distribution system in the UK, went largely unremarked in the US.

NBI has grown from turnover of \$32.9 million in 1980, to turnover of \$7.6 million in 1981 and almost doubled again to \$10 million in 1982.



OLSEN... Streamlining the marketing organisation.

DEC investors get some silver linings

BEING the second biggest computer company in the world has not discouraged Digital Equipment from appearing among the minnows, even if the financial story from the number two didn't have quite its usual glow.

In the wake of a slowdown in profits in the second quarter, the company reported third quarter ended March 30, profits of \$79.7 million, against profits of 107.5 million for the third quarter of 1982.

Turnover rose 10% on the same period in 1982 to \$1,094 million compared with \$992.2 million. All this gave DEC finance vice-president Al Mullin and his team of investor relations managers a good opportunity to add some silver linings to the otherwise dark clouds.

According to Mark Steinkraus, DEC's investor relations manager, one of the reasons for the slowdown in profits was that the company had some delays in getting production of the personal micros fully ramped up, and there was also a shortage of software for the top-end micro the Professional.

That situation was owed ended, and the calculator in the audience flashed as Steinkraus revealed that DEC had shipped 16,000 personal micros in the first three months of the year, and expected to ship about 2,000 a week later in the year.

What this means to the assembled investors is that in one year flat DEC will have shipped well over \$100 million worth of small micros from a range which, unlike IBM's, is internally and upwardly compatible.

From this base - and most of the audience clearly read the message Steinkraus was giving - DEC intends to directly challenge IBM.

The battle between the two giants, which is normally confined to the upper end of the DEC range, was initiated by IBM at the bottom

end with its Personal Computer. However, by being first into the field with a single product which was not upwards compatible with the rest of the IBM range, and by failing to develop a range of differently priced and configured models to surround its initial offering, IBM left itself open to charges of 'opportunism' rather than planned marketing.

The openings around the IBM machine have been carefully exploited by DEC, and the high level of production, which is more than six months behind orders in some cases if the UK is anything to go by, indicate that DEC is establishing a winning position in the lower end of the market despite its late arrival there.

Steinkraus also told the audience that DEC had won a huge order from Stevens University in New Jersey, which would be insisting that every undergraduate starting there next year would have to arrive equipped with a DEC Professional. There are very real prospects that MS-DOS will be available on the DEC range from next month, although Steinkraus did not make clear whether the IBM compatibility would be supplied by DEC, or by one of the thousands of small software houses now joining the queue to supply software for the DEC micros.

While this philosophy conforms to the idea once articulated by DEC president Ken Olsen that the company should offer opportunities for others to become rich, there is plenty of evidence that DEC intends to be a participant in the market for software for its own machines.

For the immediate future, Steinkraus saw DEC developing a video disc based memory system for the professional which would also have a voice input device.

Both of these offerings would be announced within the next few months, according to Steinkraus.

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SHARES TABLE

The shares table, which is specially compiled for Computer Weekly, shows selected computer companies that reflect the state of the computer industry.

Date 12/5/93			Index 135.41			Change		
Fence		London Stock Exchange	Fence		US Stock	US Stock		
1983			1983			1983		
High	Low	Stock	Price	C'nge	High	Low	Stock	
220	218	ACT (Aps Com) (50p)	382	-18	22	20	Amdahl	
220	176	900 Ltd (25p)	202	-7	28	26	Amgen	
220	176	Sea Containers	202	-7	32	30	Amgen Pnc	
182	174	900 Ltd (25p)	164	-3	32	30	Anglo	
182	174	Sea Containers	164	-3	32	30	Anglo	
224	182	CASA (20p)	182	-10	32	30	Anglo	
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WINNINGSTAD... "No hard feelings".

Floating along on a delicate balance....

ONE of the coziest niches in the computer industry is filled by the US company Floating Point Systems, which makes array processors in "coke up" minicomputers for scientific computation. Floating Point has no serious competitor in the market, and relies on keeping a delicate relationship with both the makers of the computers that the processors slot on to, and with systems houses such as CAP that develop complete packages of hardware and software for scientific applications.

by Philip Hunter

No wonder, then, that Norman Winningsstad, chairman of Floating Point, has no intention of branching out and making complete computer systems. This might offend companies like DEC and IBM whose salesmen at present recommend Floating Point processors to their customers.

After all, IBM itself once threatened to make floating point processors to bolt on to minicomputers for the long, tedious mathematical calculations needed for signal processing, prospecting for oil and other technical applications.

The Floating Point story began in 1969 when Data General introduced the first 16-bit minicomputer. Realtime scientific computation could now take place in the confined space of a laboratory. But unfortunately minis lacked the power for manipulating large numbers with a variable number of decimal places, the so-called floating point numbers.

Winningsstad saw his chance, and left Tektronix to form Floating Point in 1970 after taking a degree in business administration.

"To show there are no hard feelings, the president of Tektronix, Iliar Wenlmully, joined our board of directors in 1976," says Winningsstad. "Tektronix still sell us a lot of oscilloscopes."

Winningsstad's original plan was to build a supermini for scientific application. "The problem was that floating point processors were

in a closed end market, and computer companies would make their own floating point stuff," says Winningsstad.

"So the idea came to build a supermini, but the problem was capital gains tax." The Nixon administration raised capital gains tax although, according to Winningsstad, it was against Nixon's own wishes.

This meant a lot of venture capital was frozen, and Floating Point could not afford the investment needed for a supermini.

But this was probably a blessing in wolfskin, since the computer companies found it more convenient to recommend Floating Point's processors than make their own.

Floating Point got its biggest boost from the 1973 Arab oil boycott. "This made people change their approach to floating point hardware," says Winningsstad.

Suddenly everyone was drilling for oil, and needed powerful minicomputers for the calculations involved. Also the cost of drilling increased dramatically, making it more expedient to use computer models for seeking possible oil wells.

"We came along with the \$50,000 answer," says Winningsstad.

Sales quadrupled in 1976, and in 1977 a revolution in X-ray tomography - the use of X-rays to look for developing cancers - brought a further acceleration in demand for floating point hardware.

In 1982 Floating Point turned in a profit of \$11.5 million on sales of \$86.6 million.

The first quarter results for 1983 are disappointing, says Winningsstad. "The oil glut has discouraged companies from exploring."

Floating Point last month opened a new factory in Dublin with the help of the Irish Development Authority which paid 35% of the building costs, as well as giving a grant towards the cost of training the plant's 75 employees.

Software producers who ignore real needs

WHY should financial applications software for mainframes be real time and database? Why is it that the American giants in the industry have apparently ignored this natural development for financial packages?

Taking the second question first, it would appear that the Americans have invested so much in their old hatch-based systems that to declare them obsolete by manufacturing real time database systems would be tantamount to writing millions of dollars off their balance sheets.

Britain is acknowledged as the home of innovation and ingenuity - remember the Rolls Royce engine, the hovercraft and Comet jet. Even the first commercial computer in the world, the Leo 1, was developed by J. Lyons, a household name in the 1940s.

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This approach takes advantage of being able to use a database on an application in order to provide real time facilities.

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The real time element, providing immediate response accounting, appeals to users. The old adage, "time is money", is true. Stopping credit now, rather than later or after the goods are despatched, and basing the corporation's financing decisions on a truly up-to-date cash position, ultimately save money.

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hardware costs. Today, the argument no longer holds true. We can have real time database financial applications that do not require expensive hardware.

To expand further on the qualities of real time database, there is an ideal analogy to be drawn with another area of industry where Britain's innovation led the world: the commercial aircraft industry. In its infancy, limited technology dictated that the propeller would be the method of achieving flight.

As this technology advanced the Turbo-prop, part jet, part propeller, was invented, but appeared to be only a stopgap between a far greater breakthrough - the jet engine. In reality, all three forms of power would achieve the same destinations, but the jet was far faster and left less wear and tear on the passengers. It has remained the industry standard to this day.

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Portability has been achieved. This development will bring about a new age of system software and wake up an industry that has grown complacent and unenlightened over the years. How long can other software producers ignore the real needs of users?

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"The puzzles will be conceived by computer experts," says The Mail. (Well at least that leaves out most computer journalists.) "The series will appeal to the whole family."

"But don't be surprised if the kids turn out to be the experts," it ends.

I can hardly wait.

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"OK, what about EA, for Extended Architecture," rejoined the creative genius.

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HEARD all that talk about the paperless office? Well, forget it. It's all off - official. In fact, the use of paper will double by the end of the century, according to information from the highly-objectionable source of Pinney Bowes, accountants.

So it must be true, mustn't it?

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"These transfers of knowledge take a variety of forms, but the successful foreign competitors are commonly Japanese. Has something gone wrong in this country?"

So opened a leader comment in a well-known national newspaper. What is curious, however, is that the paper was not British, but the American Washington Post. The malaise that we in the UK are supposedly so fraught with is also understood to be the malaise of the US.

It is also curious that the British, who harbour so much disdain for most of American culture, should at the same time herald the US economy as the best example of free market forces at work. And it is instructive that the words in the Washington Post easily could have appeared in a national newspaper from Japan, France, or Germany.

The truth is that none of the world's major economies is happy with its current state of health, and all are looking for some explanation for their ills.

The information technology industry has two main players as far as the UK is concerned - Japan and the US. The Japanese are a threat because they have been able to harness their best qualities, most important of which is a rigidly structured workforce. "Japan Inc" says it all, and that country will remain a force so long as its workforce accepts a style of life which is an anathema to most people in the West.

The US is the dominant force in the computer world for one overriding reason - the size and diversity of its marketplace. Of course the US has immense natural resources to back it up, but so too does the USSR, China and Australia. It is its marketplace that makes the US supreme.

Margaret Thatcher is wont to tell the country that if only we would design the best products and use the latest technology, jobs would be created and prosperity would return. Unfortunately it is not so easy.

There is much talk that the country is making the transition from a manufacturing to a service economy. Services, it is suggested, will create new jobs to replace the ones being lost in steelmaking, shipbuilding, coalmining and so on.

Again the US is cited as an example. But not only does the US have a uniquely large and diverse marketplace, it also has the natural resources to support a service-orientated economy. While the service sector will provide new jobs in the UK, it is not a panacea.

The UK's most valuable resource in the past few years - the resource which has saved it from being relegated to a truly second class nation - is North Sea oil. And the management or mismanagement of that resource shows the folly of sacrificing the long term for the short term.

Short term and sectarian interests are largely responsible for the failure of the European Economic Community, which offers the greatest hope of matching the US challenge in both size and diversity. The European Commission has attempted to bring together the conflicting interests of its member nations - The European Strategic Programme of Research and Development in Information Technology (Esprit) is a case in point - but national and commercial rivalries and bureaucratic meddling continue to take their toll.

It is hoped that another long term issue of importance to the computer industry gets a proper airing in the run up to the election - that is the education and training of the UK's basic economic resource - its workforce. There remains in this country a great reluctance to put money into education. Higher education still remains the privilege of a few.

No number of Youth Training Schemes is going to develop the scientists and engineers and creative thinkers that the nation needs if it is going to compete in world markets.

All the world thinks the other guy has all the answers. Let us stop asking how we went wrong and begin to talk about how we can make it right.

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Manchester Evening News

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Make the user manage

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As an independent computer consultant I have been involved in this field for some considerable time, often finding bitter and entrenched opposition to the principles of user-led projects from established DP departments.

It is surely time that DP management as a whole woke up to the fact that users are demanding, and getting, more and more say in the development process. The only real way to ensure success in complex, and often costly, computing developments is to ensure user commitment and participation from the outset. There can be no better way of ensuring this than by giving him the ultimate responsibility of managing the show from the start.

If the DP establishment continue to stick their heads in the sand it's no wonder they will continue to receive smashed bottoms from disgruntled user management.

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Purley, Surrey.

Unfriendly micros

I WAS interested to read Kevin Cahill's article (Computer Weekly April 28), concerning Ian McNaughton-Davis' views about microcomputers.

While agreeing that microcomputing has its problems - a lack of industry standards, poor software documentation and so on - I do believe micros can fulfill useful roles. Very often they are purchased purely for one application but many users quickly become "micro-literate" and expand their use.

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It is far this reason BIS is providing the hands-on training packages authored by Microcal and favourably reviewed by Computer Weekly last year. These packages actually fill the training gap and teach by interactive simulation the essentials of CP/M, micros, Basic and Cobol.

Naturally there are difficulties with any relatively new technology but these must be seen as a challenge rather than a disaster area.

S. E. HELMS
Principal Consultant
BTS Applied Systems
London SE1.

Implications in code

JOE CELKO's article on Lasagne code (Computer Weekly, April 28)

IF p THEN stmt1 ELSE stmt2;
IF q THEN stmt1 ELSE stmt2;
is equivalent to
IF (p or q) THEN stmt1 ELSE

stmt2;
This is not always true. Consider the case of both p and q being

true, and stmt1 being of the form
c:=C+1

If C was originally 0, the first code will leave C=2, where the "equivalent" second code will leave C=1.

CHARLES D. STANNETT
Open University
Milton Keynes.

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Target does not actively market a batch bureau solution though is available, as we believe it not likely to be suitable for applications.

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Unless IMS can point to an example in the fact in this letter our installed systems I suggest they get on with selling their duct as we are with ours.

CHRIS DA
Managing Director
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Data Processing Managers should try this simple cost-cutting exercise.



PT7
THE ADVANCED
ALTERNATIVE
TO IBM 3270.
AND THE
ICL DRS

10 YEARS AGO

FROM COMPUTER WEEKLY OF MAY 17, 1973: ICL concluded a marketing agreement with Nixdorf UK for a multistation cash receipting system. The agreement was expected to produce £1.5 million in revenues over the next three years... A new security system from IBM known as the Controlled Access System was announced in the UK following its show debut at the Hannover Fair... Singer Data Systems scored a breakthrough with major PoS orders from Woolworths and Debenhams.





WINNINGSTAD... "No hard feelings"

Floating along on a delicate balance

ONE of the cosiest niches in the computer industry is filled by the US company Floating Point Systems, which makes array processors to "coke up" minicomputers for scientific computation. Floating Point has no serious competitor in the market, and relies on keeping a delicate relationship with both the makers of the computers that the processors bolt on to, and with systems houses such as IAP that develop complete packages of hardware and software for scientific applications.

by Philip Hunter

No wonder, then, that Norman Winningstad, chairman of Floating Point, has no intention of branching out and making complete computer systems. This might offend companies like DEC and IBM whose salesmen at present recommend Floating Point processors to their customers.

After all, IBM itself once threatened to make floating point processors to bolt on to minicomputers for the long, tedious mathematical calculations needed for signal processing, prospecting for oil and other technical applications.

The Floating Point story began in 1969 when Data General introduced the first 16-bit minicomputer. Realtime scientific computation could now take place in the confined space of a laboratory. But unfortunately minis locked the power for manipulating large numbers with a variable number of decimal places, the so-called floating point numbers.

Winningstad saw his chance, and left Tektronix to form Floating Point in 1970 after taking a degree in business administration. "To show there are no hard feelings, the president of Tektronix, Bart Wautland, joined our board of directors in 1976," says Winningstad. "Tektronix still sell us a lot of oscilloscopes."

Winningstad's original plan was to build a supermini for scientific application. "The problem was that floating point processors were

in a closed end market, and computer companies would make their own floating point stuff," says Winningstad.

"So the idea came to build a supermini, but the problem was capital gains tax." The Nixon administration raised capital gains tax although, according to Winningstad, it was against Nixon's own wishes.

This meant a lot of venture capital was frozen, and Floating Point could not afford the investment needed for a supermini.

But this was probably a blessing in wolf's skin, since the computer companies found it more convenient to recommend Floating Point's processors than make their own.

Floating Point got its biggest boost from the 1973 Arab oil boycott. "This made people change their approach to floating point hardware," says Winningstad.

Suddenly everyone was drilling for oil, and needed powerful minicomputers for the calculations involved. Also the cost of drilling increased dramatically, making it more expedient to use computer models for seeking possible oil wells.

"We came along with the \$50,000 answer," says Winningstad.

Sales quadrupled in 1976, and in 1977 a revolution in X-ray tomography - the use of X-rays to look for developing cancers - brought a further acceleration in demand for floating point hardware.

In 1982 Floating Point turned in a profit of \$11.5 million on sales of \$86.6 million.

The first quarter results for 1983 are disappointing, says Winningstad. "The oil glut has discouraged companies from exploring."

Floating Point last month opened a new factory in Dublin with the help of the Irish Development Authority which paid 35% of the building costs, as well as giving a grant towards the cost of training the plant's 75 employees.

Software producers who ignore real needs

WHY should financial applications software for miniframes be real time and database? Why is it that the American giants in the industry have apparently ignored this natural development for financial packages?

Taking the second question first, it would appear that the Americans have invested so much in their old batch-based systems that to declare them obsolete by manufacturing real time database systems would be tantamount to writing millions of dollars off their balance sheets.

Britain is acknowledged as the home of innovation and ingenuity - remember the Rolls Royce engine, the hovercraft and Comet jet. Even the first commercial computer in the world, the Leo 1, was developed by J. Lyons, a household name in the 1940s.

Looking back over the history of the industry in the mainframe field, it is easy to define the several stages of evolution that have taken place. The first generation packages used the batch process requiring data inputting, then editing, sorting and finally the completion of the update.

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Third generation software is where data is entered on a screen, validated and edited simultaneously and the stored information is available to the user at any time.

So what's in a name?

HOW do you go about choosing a name for your new computer? You could go for the rather dull technical approach - ZX81, 2988, 370/145, and so on, but they're well, dull. Burroughs, couldn't be bothered to make up its own numbers, and used some of ICL's. Now you know why the 1900 and 2900 series installed base is so large - there are two manufacturers making the things.

So how do you go about choosing a name rather than a number for this week's new micro? The trouble with all the good names is that they've probably already been used.

If you happen to be a US company called Cosmos Computer, you'll hire a team of researchers to draw up a list of 242 possible names, then pick Gaviilan.

No, I didn't know what a Gaviilan was either. It is, apparently, the name of a range of mountains in California which was in turn named after a breed of red-feathered hawks which inhabit them.

Not a bad name eh? Noble birds soaring high over snow-capped peaks in the golden glow of a California sunset - no wonder they picked Gaviilan.

It can't possibly have anything to do with the fact that it was one of only three names out of the 242 that was free of trademark constraints.

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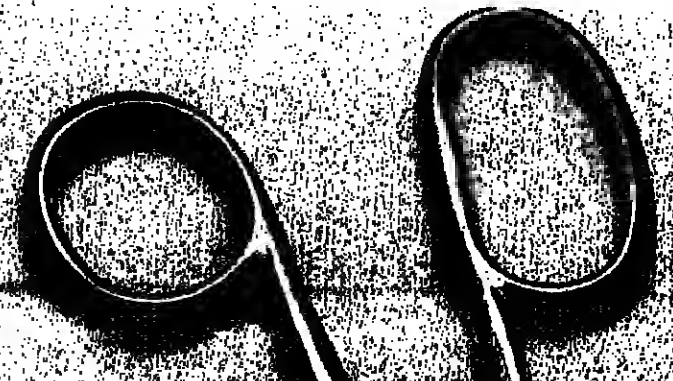
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Managing Director
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ICL DRS

WORKPLACE



SLAMAN... "Easier to write programs to construct searches in Lisp."

Symbolic boost for artificial intelligence

THE battle for the growing artificial intelligence market has so far been fought more with software than hardware in the country.

But Symbolics, US maker of the first machine dedicated to the AI language Lisp, is muscling in with a new combination of hardware and software.

Symbolics has begun to deliver its second Lisp machine, the 3600, to Europe. It supports several languages as well as Lisp, and offers an improved interactive programming environment with debugging facilities, also networking facilities with a link to Eibernet.

Lisp is the most widely used language for AI in America. Symbolics has two main competitors in the US for Lisp machines, Xerox and Lisp Machines Inc. But Symbolics at present has a clear run at the UK market.

Symbolics released its first Lisp machine, the LM-2 in 1981. This is now being phased out after 52 sales. The company has more than 200 employees, including several of the team that originally developed Lisp in the 1970s at the Massachusetts Institute of Technology. The current president of the company, Russell Nofziger, was head of the AI unit at MIT.

Lisp is a concise language, described as "elegant and economical" by its addicts, but as "unreadable" by its opponents.

Its popularity in the US springs partly from its suitability for natural language processing. It is good at manipulating symbols, and for building lists of related qualities, such as the meaning of a word and its grammatical type.

The new Symbolics machine supports the deluxe version of Fortran, Fortran-77, in an attempt to woo the scientific and engineering community, which uses the language for most of its applications.

Chris Kenny of Electronic Associates, the UK distributor for Symbolics, says that scientific users will be attracted by the power of the machine, and might use the Fortran initially. "But we hope to win them to Lisp. It is much more efficient."

Lisp runs quickly on the Symbolics machine designed specially for it, although on other machines it runs slower than other high level languages like Fortran. But it is certainly more concise - a 400-line Fortran program will often translate into 50 lines of Lisp.

For this reason it is harder to read, and also to maintain, unless the implementation has good interactive debugging facilities, which the Symbolics 3600 does.

Aaron Sloman, of Sussex University, who has helped develop and implement a rival language to Lisp called Pop-11, thinks that people will only change to Lisp when they find there is something they cannot do in their usual language.

"It is much easier to write programs to construct searches in Lisp than Fortran," he says.

But Sloman admits that there is by now a formidable collection of existing Fortran programs for scientists and engineers, so they will need a good reason to change to Lisp.

Symbolics has so far delivered its 3600 machines to ICL for development of a computer-based training package, and to the German electronics giant Siemens for research in machine translation, an application in which Lisp leads the field.

Racal Decca has also bought one of the machines to develop expert systems for the oil industry.

Kenny says that there are another 10 UK European orders in.

The cost of the 3600, including all the software, is £10,000.



"No wonder it was cheap! It's got 'Now wash your hands' written on every sheet."

NCC's new Cobol compiler service nets a big fish

ICL leads the way to validation

STANDARDISE or be damned! That is the stark message reaching makers of UK Cobol compilers, as the National Computing Centre swings its validation service into action.

The Centre launched its Cobol validation service in March in an attempt to bring UK compilers into line with the 1974 standard laid down by the US Department of Defence. And already the service has landed the biggest possible fish, ICL.

The next version of the Cobol compiler for the ICL 2900 under the Virtual Machine Environment (VME) will be validated by the Centre. According to Vony Gwillim, head of the Centre's new validation service, this will pave the validation way for other UK companies.

"I think once ICL is validated, others will follow suit," she says. Gwillim believes ICL's decision will remove the taboo in the UK against conforming to the standards dictated by the US.

But why has it taken ICL such a long time?

ICL's manager of Cobol production products, Ken Watts, thinks that maybe it is for chauvinistic reasons. ICL had not wanted to bow to the strong US wind.

Watts says the decision to go for the validation now was based as much on a need to protect existing markets, as to seek new ones. US customers have ever insisted on validation.

But as more compilers are validated, customers will come to expect their Cobol to have a certificate, just as a car must have its MOT.

Both Watts and Gwillim expect that the government's powerful purchasing body, the Central Computer and Telecommunications Agency, CCTA, will now make a stronger statement in favour of validation.

"I feel that the CCTA didn't come down too heavily in case ICL was caught out," says Watts. That fear will soon be groundless.

The Centre is meanwhile busy building a database of Cobol installations aimed particularly at first-time buyers of compilers. Results are coming in from 60 questionnaires sent out to compiler suppliers, and the Centre aims eventually to present the results in tabular form to give a clear display of the differences between the various Cobol implementations.

The service will also be of interest for installations converting from one Cobol to another, says Gwillim.

"People will be able to phone the NCC for information on Cobol," she says.

Watts says that only minor changes are having to be made to the ICL compiler for validation. One is that ICL Cobol allows only single sentence comments in programs, while ANSI Cobol allows several sentences.

Systeme and Computer Technology have already had their compilers validated, as has Micro Focus. Ferranti has announced that it will go for validation, and GEC is hovering.



London software is providing the first public guide through the maze of cut-price air fares.

Software allows free air fare info

SOFTWARE written by a small London consultancy is behind the UK Air Travel Advisory Bureau's successful telephone service offering the public free information on discount air fares.

The package was tailor-made for ATAB by systems house Astex, which deals exclusively in the Memory 7500 microcomputer.

The system works online and enables ATAB to tell enquirers over the phone which travel agent is offering the cheapest air ticket to the required destination.

Astex has also written software for ATAB's service giving travel agents information on wholesale tickets.

This service also enables travel agents to buy tickets from other travel agents. The cut-price air ticket business has become such a maze that travel agents can sometimes benefit by buying tickets from their competitors.

ATAB was set up a year ago to put the public in touch with the cheapest travel agent for the flight wanted. After a few months the second service, called Flight File, was launched for travel agents.

The ATAB public service makes its money from the travel agents it represents, who pay to have details of their flights on the computer. It cannot therefore guarantee that it will find the cheapest flight, since it relies on travel agents coming up with the details - and the cash.

The public ATAB service is online and is constantly updated. Flight File for travel agents is not online, but produces weekly-updated microcassettes which are sent out to the 200 subscribers.

Flight File receives price lists from 150 discount ticket wholesalers covering 500 worldwide destinations. This information is reduced to a standard form listing the available flights to each destination.

Astex has also developed a general purpose reservation system for travel agents that runs on Memory computers.

PEOPLE

General manager for Commodore



Stanworth

Howard Stanworth has been appointed general manager of Commodore Business Machines (UK). He succeeds Robert Gleadow who has been promoted to vice-president, Commodore Electronics, Hong Kong.

Prior to joining Commodore, Stanworth served as a director of St Ivel and managing director of Unigate Dairies (Midlands). In this capacity he had responsibility for over 3,000 employees involved in the processing and distribution of the company's products.

His previous management experience includes the managing directorship of Excelsior Plastics (Wincanton Group), and production services manager and general manager (service) within the consumer electronics activities of the Rank Organisation.

Stanworth's appointment is the first in a series of moves which are being implemented to coincide with the establishment of the Commodore European manufacturing and distribution headquarters in Corby and re-affirms the company's commitment to maintaining its lead in the production of home, personal and business microcomputers.

After twenty years' selling in the computer industry, Bob Howell has taken up the position of sales manager at Lipman Management Resources of Maidenhead (LMR).

Zegal Dynamics has appointed Adrian Young as systems consultant at the company's business centre in the City of London. He was formerly a systems design engineer at Comshare. Mike Bailey has been named Zegal's sales manager. He joined the company as a salesman from Anderson Jacobson.

John Martin has been appointed as director of engineering at Plessey Telecommunications. Based in Liverpool, he will report directly to Eric Clark (Chief Executive of Plessey Telecommunications Ltd) and will advise on all engineering matters. He joins Plessey from British Telecom where his last appointment was as director of System X development.

Ken Highland has been appointed marketing manager for Rediffusion's new distribution/dealer division, designed to pursue volume sales of the firm's Teletype, a microcomputer-cum-video terminal. He formed his own marketing consultancy in 1979 and also established a family catering and health food business.

Loisy is expanding its telecommunications division. Tom Yates has been recruited as a senior consultant from Bristol, where he was senior telecommunications engineer. James Munro, who also joins Loisy as a senior consultant, was previously communications systems manager at Arbat.

Torch Computers has reorganised its sales and marketing operations. William Wilson has been appointed UK sales manager. He joins the firm from Rank Xerox, where he was advanced systems marketing manager. Torch PR manager Dick Tamminga has been appointed marketing manager and will run Torch's new marketing department. The company has concentrated its production, financial and administrative functions into an operations division, to be headed by former financial controller Neil Mackay.

Johnny Glover has become European general manager for Selanar GmbH. He was previously with IST Computer of Munich as branch manager.

NBI has appointed John Lewis as London branch manager. With 15 years' experience in office systems, Lewis joins NBI from CPT, where he was government and national accounts sales manager. Previously he was with Rank Xerox and Olivetti.

Adding extra back-up to its Rosendale technical sales team, Pcte and Pain Computers has appointed Rita Tattersall to its new tele-sales force. Tattersall joins the company having had two years' experience in a similar position with another Rosendale company.



Alpha Microsystems (Great Britain) the newly launched UK subsidiary of Californian microsystems manufacturer Alpha Micro, has appointed David Ford (above) UK general sales manager. Ford joins the firm from Digital Equipment where he was marketing manager of the company's laboratory products group. As well as two years with DEC, Ford's experience exceeds years in the computer industry, with positions with Texas Instruments, Hewlett-Packard, and Elliott Automation Computers.

The computer and software division of Parkhurst and Company, the South Wales based estate agent, has appointed Mike Brewster as Systems Analyst/Programmer. Brewster, who joins Parkhurst from RTZ Computer Services, will be responsible for major development projects on the computer software system the company is offering to estate agents covering residential sales, commercial property sales, property management and accounts.

Janet Stanfield has joined Applied Micros, the Warrington-based microsystems house, as training manager. Prior to taking up her new position, she was a sales executive for Comshare.

Frank Ferrett has joined the Golden River Company as UK sales manager. He was previously in a field sales position with Microdata Ltd.

Lion Microcomputers the London micro retailer, has appointed Shabid Gillani service engineer/manager. He will be responsible for in-house and external servicing of all computers and peripherals. Gillani joins Lion from Leigh Instruments where he spent two years as a service engineer.

Trend Communications, the data communications division of Phicom, has appointed John Ing as a product marketing manager with responsibility for the market development of Trend's range of printers. He was previously general manager of Percec International, a subsidiary of Triumph Adler.

Reg Mills has been appointed general manager and director of Kerridge Computer company (Ireland). He has been with the firm for three years.

Package Programs Limited has appointed two more consultants for its subsidiary PPL-MMS. They are Sylvia Rifkin and David Finch who are supporting users of the MMS General Ledger, Accounts Payable and Accounts Receivable Systems. Rifkin, on the client support side, has wide DP experience, including over two years with Univac in South Africa and the UK. Systeme in Leeds where she was a systems analyst for two years, and latterly as DP Manager with Rocol, the Leeds based lubricant manufacturers. Prior to joining as a technical support consultant, Finch completed a four months TOPS course with Datavolve.

DIARY

MAY 25
The control of Electricity Distribution (IBIE). The Polygon Hotel, Cumberland Place, Southampton. 8.30.

JUNE 1
Computers in court - DP and the law. IDPM Central London branch. Alfergo, 15-19 Kingsway, London WC2. 6.00

Privacy - data protection legislation, by Michael Wood of the NCC. IDPM Sussex branch. Room G27, Mithras House, Brighton Polytechnic, Moulcombe, Brighton. 7.00

JUNE 7
Social evening. IDPM Birmingham branch. Tickets at £3.50 are available in advance from the secretary. Buffet and skittles included in cost. Members may bring along non-members as guests. Tel: (021) 550 0375. Selly Park Tavern, Pershore Road, Selly Park, Birmingham. 7.00.

JUNE 8
Chloride Standby Systems. IBIE. Polygon Hotel, Cumberland Place, Southampton.

JUNE 9
Wine tasting/social event. IDPM Sheffield branch. Fountain Precinct, Sheffield. 7.00. Tel: John Reedman on Sheffield 618539.

JUNE 13
Tomorrow's staff - where are they now? IDPM Norfolk branch. Castle Hotel, Castle Meadow, Norwich. 7.30.

CONFERENCES

A CONFERENCE entitled Cost Effective Computing aims to update financial directors and managers responsible for data processing on significant developments in computer systems techniques. Emphasis will be given to improving productivity in the systems development process. Topics will include: Cost trends of hardware, software and people; the present EDF environment - increasing costs and decreasing return on investment; end user computing and networks; database applications and development; project management; and improving productivity - a systems development strategy for the Eighties. Organised by the Institute of Chartered Accountants of Scotland, it will be held at Edinburgh's Crest Hotel on June 21 and costs £76 + VAT. Details: (031) 225 5673.

Networks expert Professor Martin Healey will address an NCC seminar called Networks for the Business User on May 26 in London and on June 22 in Manchester. The seminar provides an overview of the different network architectures and the environments in which they are most effective. Details on (061) 228 6333.

Esperanto set for EEC revival

AUTOMATIC translation of human languages is not coming easily - but there is now hope of a breakthrough by making use of the international language Esperanto.

The idea is that a language should be translated first into Esperanto, then into the target language. This makes it easier to cope with subtle shades of meaning, and reduces the number of machine translators needed for a given number of languages.

The European Community has eight main languages needing 56 different translators for direct conversions. By use of an intermediate language, only 16 different translators would be needed.

The EEC has recognised this, and lodged a big contract with the Danish electronics company Christian Rowing, and Dutch consultancy DSC, to develop language translators using Esperanto as an intermediate language.

Why Esperanto? One reason is that there is plenty of Esperanto knowledge around, with over a million regular speakers of the language in Europe.

Esperanto was developed in the last century as an international business language. The closest real language to it is probably Spanish, but the language originally proved a flop and has since survived only among a small coterie of faithful intellectuals.

Now it could be set for an unexpected resurgence, since it is ideal for machine translation. Unlike all real living languages it is perfectly regular, with no funny verb endings.

But since it was designed to be spoken by people, the language does have some life, and is sufficiently rich and flexible to express legal, scientific, political and even ethical ideas. Whether it can also express the works of James Joyce remains to be seen.

Some people have suggested that more precise translations could be obtained by using an abstract language as an intermediate. One such language is called Sinit, and consists of labelled syntax trees pointing at nodes of meaning in a similar organisation to a thesaurus.

The trouble with such abstract languages is that they mangle all life out of writing of any subtlety. They also suffer from being inaccessible - each language would disappear into a black hole of obscurity before being reconstituted shaken and shaved as the target.

Esperanto is a bigger language than the abstract ones, so it would take more processing power to use it. But that is likely to be the least worry.

Esperanto is not quite dead, so it is subject to inconvenient change. But all changes are controlled by one authority, and would be introduced only to reflect some common international change.

Workplace is compiled by Philip Hunter.

PUZZLER

I HAVE before me six small weights, identical in appearance. However, despite their similarity, three of the weights are slightly heavier than the other three.

Let us say then that three of the weights are x gm each, and three (x + 1) gm each.

The problem is to work out a method for identifying all six weights, using a balance-scale three times only.

As an additional constraint, each side of the balance can hold just one weight at a time. See page 62 for solution.

A new star is born

pulsar

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PULSAR business software is the creation of ACT - the company behind the Sirius 1 and recognised leader in 16-bit personal computing.

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AVAILABLE NOW FOR SIRIUS - IBM PC and DEC Rainbow coming soon.

A major Belgian bank is claiming a world first in fully electronic document processing . . . Jeremy Woolfe reports

Top savings bank takes on a new image

ACCORDING to conventional thinking the large scale data entry processing of bulk quantity standard documents such as money transfers, airline tickets, hospital health records and numerous others is best automated using the technology of the microfilm. Such systems of varying degrees of ingenuity are currently attracting the largest share of investment in their field of document handling.

However, there is a potential rival to microfilm systems that does away with the physical celluloid of the film. This is the electronic image or virtual image system, in which the film is replaced by converting the image on the document into standard computer data consisting of digital electronic pulse trains.

Despite its apparently easy integration with mainstream computer science, the reputed state of lack of development of this technology results in it being classed as just one more hopeful technology of the future.

In fact the technology has recently gained a substantial foothold as a development very much of the present and would seem to be on the verge of placing its footprints over even wider areas. This is a reasonable inference to draw from at least one large scale and highly successful

system based entirely on virtual imaging.

This little publicised project is installed at the headquarters of the largest savings bank in Belgium, the Crédit Communal de Belgique, a major enterprise which in assets is among the first 100 banks in the world.

The Crédit Communal, whose main purpose is the financing of local authorities in Belgium, heads

Use of electronic image data entry has meant greater productivity. The people who key in are about 30% more efficient

a structure of 1,300 independent agents distributed throughout the country and employs more than 2,000 people directly. Another 2,000 are employed by the agents.

Data processing arrangements at the Crédit Communal focus on IBM computers located in the bank's Data Processing Centre in the main commercial area of Brussels.

Two IBM 3081 mainframes are linked to various ancillaries such as

disc storage units, magnetic tape units, a mass storage device and also a microcard configuration.

Transmission of data into the Brussels centre is carried out via a number of channels, including paper documents, tape, diskettes and, where justified, direct telephone channel links.

But the most notable means of data entry is the bank's electronic image system which came fully on stream in the summer of 1982. Out of a total 250,000 documents passing in each day, the new pioneering system is already handling 45,000 - nearly 20% of the total.

Use of electronic image data entry has meant greater productivity. The people who key in are about 30% more efficient.

Under the conventional system of multi-keyboard data entry each operator would process around 200 of the bank's standard money transfer documents an hour. Working at maximum speed one operator could reach 220 documents an hour.

This compares to a maximum of 280 documents an hour using the electronic image system and 260 documents an hour at normal working speed.

Expressing the same comparison in another way, a team of 28 people working a standard 6hr 45min day who would be expected



One of the main headquarters buildings of the Crédit Communal Bank in Brussels, which is claiming a world first in virtual image processing.

to process 37,800 documents a shift with conventional data entry systems, would raise output to 49,140 documents under the new system.

Another major benefit is reduced requirement for staff training. With the electronic image system training can be carried out in several hours, rather than over a period of three or four weeks.

The new installation at the Crédit Communal bank is the brainchild of two Belgian entrepreneurs, Daniel and Roland Borrey,

brothers, whose company, Correlative Systems International SA/NV, is now a rapidly developing unit within the CII Honeywell Bull family.

Crédit Communal's installation of what is known as the VIPS 2000 is not unique in that Correlative Systems has other virtual image processing systems operating in France and Belgium, but it claims to be the first, and it is probably by far the largest to be operating to date.

The largest group of VIPS 2000s expected to become fully operational in the future is at present in the process of installation by the Iraq government in Baghdad. The systems are being created there for its Ministries of Health and Trade, and for its prestige Department of Information.

The VIPS 2000 at the Crédit Communal in Brussels handles a particular money transfer document, the X document, which is designed to be a miniature balance sheet for all entry and withdrawal operations carried out by savers at the branches.

Information of the X document, which comes in the format of print, type, and handwriting, is relatively complicated in itself. But processing using the virtual image system is extraordinarily simple.

Under a classic system of data entry these X documents would first be grouped into batches of about 50 documents, and then would be photographed on to microfilm. The documents themselves would be annotated with the microfilm number, while the microfilm would go on to development processing.

In the meantime the paper documents would pass to the data entry operator positions for keying-in the relevant information, and finally into a temporary filing system.

Data recovered by the operators would be transmitted via magnetic tape into a mainframe computer which would finally produce a client statement. Error correction would be complex. It would involve recovering paper documents from the temporary files and microfilm from one stage or another. Corrections would be passed into the mainframe.

The technology of electronic imaging is also far less cumbersome; it starts when the image on the incoming document is captured by a row of 1,024 (charged couple device) photocells. It is in this way that the black and white constituents on the document are

converted into binary code pulse trains, 0 for white and 1 for black. Each document, which measures 165 x 170 mm is represented by 1,024 x 512 individual constituents.

A compression algorithm then "packs" the data, reducing its volume by between 70% and 80% by means of a code which economically compresses out most of the redundant white "0s".

Images captured by this method can be recorded on tape, stored on disc or mass memory, and displayed on a video screen. Data entered via keyboards from documents is stored together with the image.

At the Crédit Communal, as soon as the paper documents have passed through the image capture stage, they are stored. They do not move, then they are destroyed.

All document "manipulation" is carried out electronically. The document is only "seen" when its image, or the image of part of it, appears on anyone of 40 video screens, including four used for correcting any errors.

As a result of the electronic manipulation, various parts of the X document can be treated separately, according to need. In fact, the first data to be registered is the document's 12 figure identification which is in printed form using a normal typeface, not an optical character. This is recognised by fully automatic means involving advanced pattern recognising software.

Once this figure, which provides the key for any later retrieval of data or images has been captured, the document is then scanned again automatically, to recognise the presence or absence of data in various zones.

Only when this has been carried out are parts of the document's image shown to human operators. A flying cursor is used to indicate

All document 'manipulation' is carried out electronically. The document is only 'seen' when its image, or the image part of it, appears on any one of 40 video screens, including four used for correcting any errors

the precise zones requiring attention. This relieves operators of decisions of what information on the document needs attention and contributes to a reduction of keying-in personnel.

Part of this improvement is gained by increased efficiency to correcting any errors. This is dealt with simply, during a second phase of data entry. Checking is aided by automatic analysis of the document, the existence of check digits among figures and also by an automatic scanning system that prior to keying in counts the number of digits hand-written in boxes on the X document and then later compares this with keyed data.

Post-data entry technology, with the VIPS 2000, involves retaining online the document images together with keyed-in data during eight days, before transfer to mass storage tape.

Benefits of the system, apart from increased productivity, involve improved security (because physical handling of documents is cut to the minimum) and relatively easy retrieval of data from storage.

Behind this whole step forward in the technology of document processing lies a story of endeavour that began in 1973.

Work on the electronic document was prompted in 1977 through a research contract from the European Commission, but from the first test models which were achieved relatively easily, there were years of effort in tackling practical problems.

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Cullinet's relational database for IBM computers. It's called IDMS/R.

IDMS/R is the single solution to the two sided problem of providing useful database applications for both end users and production tasks.

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As a superset of Cullinet's proven network database, IDMS/R allows you to handle high volume, production applications with the network technology best suited for the job. It's this unique marriage of architectures that makes Cullinet's relational database stand apart.

Where others have tried to propose relational or psuedo-relational components that exist separately from the

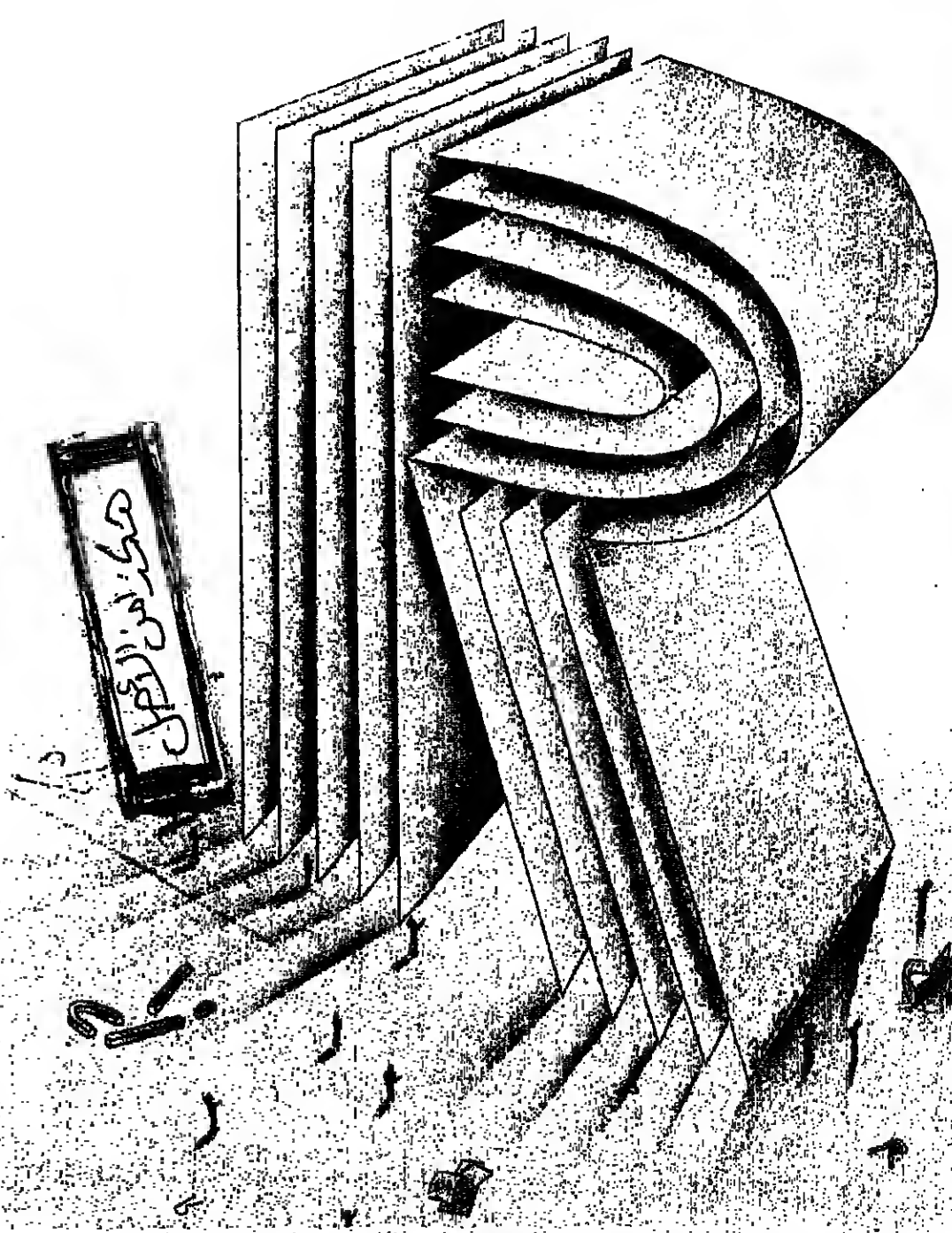
production database, Cullinet's is the only one that lets both work together. Thus serving the whole corporation by serving all of the needs within it.

IDMS/R.

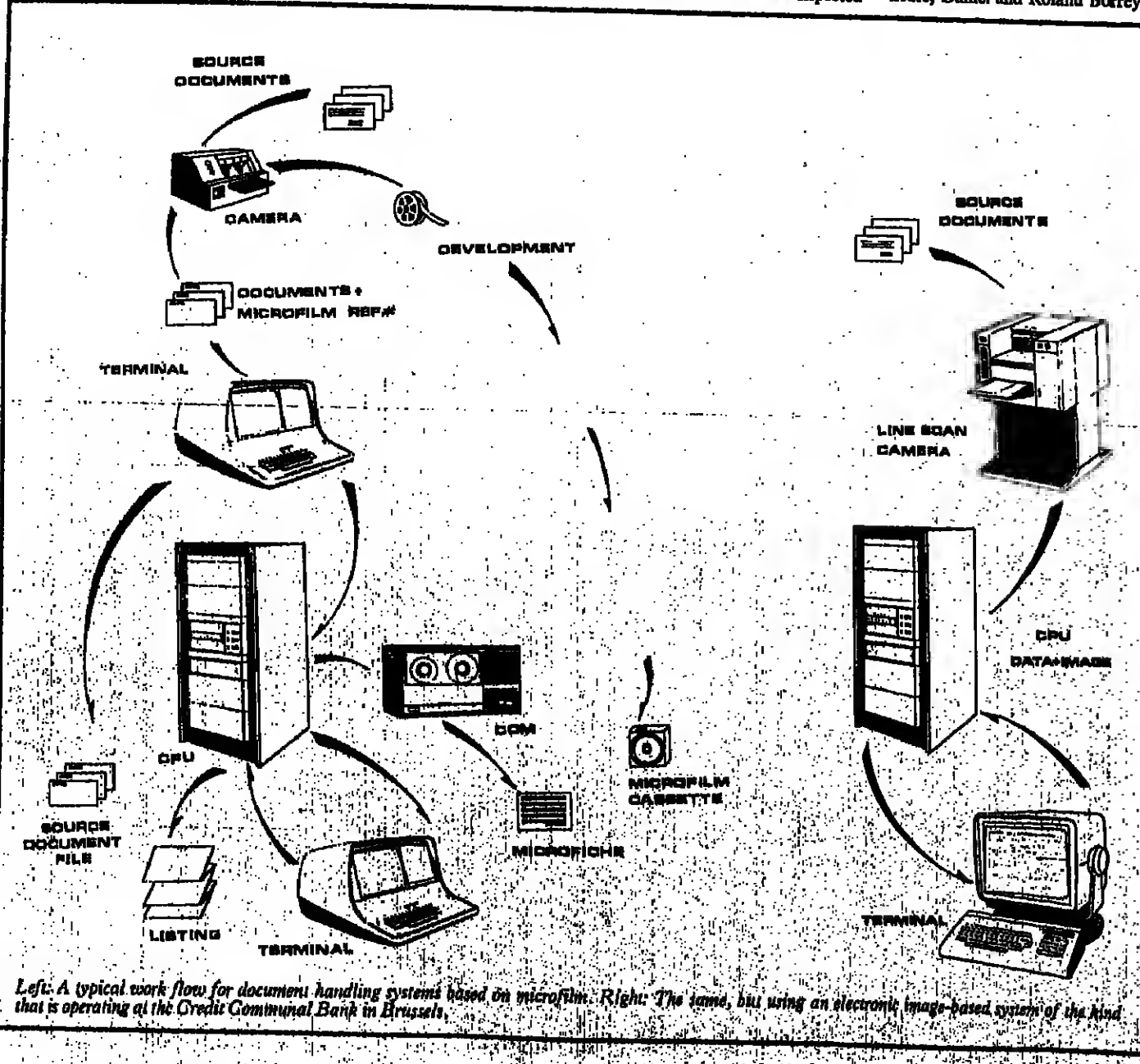
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Left: A typical work flow for document handling system based on microfilm. Right: The same, but using an electronic image-based system of the kind that is operating at the Crédit Communal Bank in Brussels.

Honeywell faith is in mainframes

Honeywell product manager Keith Manning explodes some misconceptions about demise of the big machine

A BELATED announcement by Honeywell that it is entering the micro-computer fray was made in the US at the end of March. But in the UK Honeywell product manager Keith Manning was more than a little coy about the product's release over here.

He preferred to talk about big machines: "There are many misconceptions about the demise of the big machine. I believe its functions will increase."

The root of Manning's belief is the enormous amounts of data that are on tap as systems are tied into large networks.

"Our users are telling us they need big networks of machines, probably using public networks to transfer data."

And with those networks "we

will be picking up an awful lot of data. We will need big machines with manipulative software to handle that data."

The importance of the mainframe to large networked systems makes "nonsense of the rumours that we are getting out of the mainframe business. We are in the mainframe business to stay," Manning emphasises.

Even Honeywell's personal

There are many misconceptions about the demise of the big machine. I believe its functions will increase

computer announcement could be seen in reinforcement of Manning's arguments about the importance of the mainframe. The micro, dubbed a "corporate micro" in the US, is not aimed at the standalone market. It is compatible with Honeywell's distributed systems architecture, DSA, and with IBM communication protocols SNA and bisynch.

But Manning was not prepared to go on the record about the micro, the Microsystem 6/10, just yet - at least until the UK management has developed a local market strategy. What he would talk about was Honeywell's office automation products, where an obvious parallel can be drawn.

Manning admits that Honeywell came late to office automation, and



MANNING... "Our users are telling us they need big networks of machines".

the UK announcement came some six months after the US release.

"But we never saw it as a standalone system. So when it came it could communicate to mainframes."

And what will be the hub of office automation systems? The mainframe, he says.

Office automation is one of the four main areas Manning thinks will drive the marketplace in the next decade. The others are distributed systems, which are "here to stay" even with increased telecommunications costs; application specific solutions; and communications.

Office automation is at last "beginning to take off," Manning says, but he has no doubts that it is fundamental to future product developments. Most of Honeywell's sales of office automation systems have been to customers that already have hardware installed.

The success of projects such as the one in Stratford, where Honeywell is installing an office automation system as part of the Department of Industry's programme to back test sites in the UK, is critical to ensuring wider acceptance in the market.

"Our users are telling us they want improvement in development programs, in ways of training people. We are being asked to develop standard software, standard interfaces, standard files, languages, and even hardware," Manning says.

Productivity tools is one area in which Honeywell is seeking to meet this need: in developing specific products, half the research and development expenditure goes on software productivity.

The other key to Honeywell's approach is that all its networking products are developed to ISO standards across the product range. And he believes that in the end other manufacturers will have to go for ISO standards - "even IBM is taking notice".

In local area networks, Honeywell is sticking closely to the IEEE and ISO. Honeywell is not trying to lead the way, but Manning says that when it is "absolutely clear" which standards will hold sway, Honeywell will provide LANs for its users.

But Manning couldn't say whether Honeywell will manufacture a product, or just allow users to interconnect.

The company is looking closely at Ethernet, token bus and token ring LANs.

On token bus, Honeywell has been providing information and doing tests for the IEEE. Through its association with CII-Honeywell Bull, it knows the position being adopted by the European Computer Manufacturers' Association.

"Standards are evolving through the committee stages, and we are doing all we can to impact that," Manning says.

While local area networks may be stealing the limelight, Manning is one of many who does not underestimate the future role of PABXs (Private Automatic Branch Exchanges). A digital PABX can in itself provide LAN capability, and Manning says Honeywell has been "creeping up quietly on it for a number of years".

In March 1981, it acquired Action Communications Systems, a Dallas-based company which Manning says is one of the biggest network optimisation producers in the US. Honeywell has also picked up several other PABX distributors

in the US, including Telamerica, TR Communications and Executone.

Honeywell is evaluating its own very fast digital switch. That is part of the company's normal research and development effort, and there is no commitment to announce a product.

Manning sees a Digital Control Centre as the heart of future systems, which would include a large-scale general purpose computer, multifunction workstations, LANs, and building security controls, all of which would depend on voice and data input.

Honeywell, Manning thinks, is well placed to meet the future needs of its customers, and he talks of a new found "synergy" between its process control and information systems divisions.

Manning pointed to changes to Honeywell Information Systems which were announced in the US in March as evidence of the com-

One of the essential requirements for the development of office automation is a standard executive workstation

pany's commitment to a "market driven strategy". A Manufacturing Systems Division, responsible for factory automation, and an Office Management Systems Division, responsible for office automation, were created to complement the Application Systems Division. Each is a complete profit centre, with its own R&D and production.

The changes will not, however, affect Honeywell's selling of its products by geographical area. While many other manufacturers are realigning themselves to a line of business type of selling operation, direct selling by geographic area will remain "very important".

Looking to the future, Manning says that one of the essential requirements for the development of office automation is a standard executive workstation. But a start would be an executive workstation which would be standard across different applications within one manufacturer's product line.

He also expects exciting developments in storage media. The price performance of disc drives is still better than other devices, he says, and this will go on. But there will be an increasing requirement for archiving capability, with four to five second access time. That, he believes, is one of the essentials of office automation.

The video disc is one solution, with a 64 platter juke box type system where one platter can be pulled out at a time - likely to be two or three years down the road.

A vast improvement in end user facilities is essential, he says, and the mainframe has to become more approachable. That is because, Manning says, "the better the end users system, the more power you need to drive it".

Which brings us back to the misguided talk about the early demise of the big machine.

OFFICE AUTOMATION

Matsushita lays out \$600m a year to take office market

Donald Kennett outlines the office company's ambitious 10-year strategy

MATSUSHITA'S ambitious plans for leadership in office automation were outlined earlier this month at the UK launch of its UF-800 range of modular and upgradeable facsimile transceivers.

Backed by a \$600 million a year research and development programme, the company is pursuing a 10-year strategy of drastically reducing its dependence on consumer markets. Office automation is to play a key part.

Products in the pipeline include three different types of optical disc storage device, an optical fibre based local area network, a 16-bit small business computer, a 100-line private telephone exchange and a switching system for cellular radio mobile telephone services.

Achievements so far include introducing the first facsimile transceiver to conform to the CCITT Group III specification for transmitting an A4 page in less than 0.1 minute (in 1981) and the first radio paging device capable of displaying the caller's telephone number (last month).

Mamoru Miki, joint managing director of Matsushita's UK office automation subsidiary Panasonic Business Equipment, expects the Japanese office automation market to grow at 20% a year through the 1980s, with other markets following the Japanese lead.

"Japanese companies are stepping up their investment in

office automation," he said. "Their factory investment is nearly complete and offices will be next." The US would be the next market to take off, he added, while in Europe the pace would be set by the Scandinavian countries.

The UK was also regarded as a significant market and the last two years had seen crucial groundwork for the company's growth in it, Miki said. "We have been solidifying our market foundation and our factories in Japan have been preparing products ideal for this market," he said. "Now we are confident that our market share will rise steadily."

Miki recently joined his fellow managing director John Saxton, who ran Matsushita's UK business products agency until the company took it over in 1980, to strengthen the links with the Japanese factories.

Its UK distribution will be one through three dealer networks: for microcomputers, photocopiers and telecommunications products. It will be five to 10 years before the three areas merge into a homogeneous office automation market, Miki believes.

"The way the dealers approach the user is quite different," he said. "Facsimile goes through the telephone network, therefore it goes with telecommunications products such as answering machines, autodiallers and pocket pagers.

Copiers are similar to the car industry - the user is interested in image and styling."

"Small-business computers are the most difficult. You need very expensive people to sell them."

The modular construction of the new facsimile transceiver will enable the company to introduce a variety of processor-based add-ons and interfaces such as an X21 module for connections to digital circuit-switched public data networks.

The machine also does clever things like skipping passages that are marked in the margin and printing an activity report of all calls made, their time and duration and the code number of any problem that occurred during transmission. And it can send photographs to another machine of the same type by using its 16-step grey-scale on a grid of up to eight picture elements per millimeter.

The optical storage devices in the pipeline include the erasable one Gbyte disc drive which was announced as a world first last month. This is now in the product development stage in which decisions such as what size the disc should be, are made.

The first UK demonstration is planned for the International Business Show in Birmingham in October and test marketing is due to start in Japan early next year, but it is unlikely to reach the UK before the end of next year.

The erasable disc is coated with tellurium oxide, which is used in magnetic recording media. But the addition of small quantities of germanium, indium and lead enables its reflectivity to be altered by a pulse of laser light at such speed that television signals can be recorded in real time.

Last year the company began selling (in Japan only) an optical disc filing system - the Panafile - capable of storing 10,000 A4-sized documents on a 20cm disc. The year before, it launched a system capable of storing 15,000 colour pictures on a 20cm disc for display on a television set. But the UK does not figure in the company's marketing plans for any of the devices for the near future.

And the same goes for the optical fibre based local area network. "The local area network will be a key part of our office automation system, but not yet," said Miki. It might be demonstrated in Japan within the next 18 months, but it was two to three years from being shown in the UK, he added.

Meanwhile, the Panasonic JB-3000 16-bit small business computer has been given a Corvus Omninet interface. The machine is already on sale in Japan - as the Mybrain 3000 - as well as in Australia, Singapore and South Africa. It will be launched in the UK in October.



MIKI... Japanese office automation market will grow at "20% a year".

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VIDEOTEX

French Telecom is no longer a music hall joke

Jack Gee looks at how videotex ventures are expanding at home and abroad

FRANCE's videotex ventures are expanding vigorously on the domestic front and capturing foreign markets against strong international competition.

By the end of 1984 500,000 homes and offices will be equipped with terminals providing access to an electronic telephone directory and, in many areas, to a wide range of other databanks and home banking and shopping services.

Ironically, the big push to develop Teletel, as France calls its interactive videotex, has come from a Socialist government which before it came into office two years ago had promised to slow the pace at which the new technology was being introduced.

Teletel was promoted with the firm support of President Giscard d'Estaing who in the mid-1970s saw it as the future keystone of France's telecommunications industry. It is hard today to believe that ten years ago French Telecom was one of the most inefficient in the Western world.

But Fernand Raynaud, a popular music hall comic of the time, unfailingly brought the house down with a turn called "22 at Asnières". It was based on a frustrated Parisian's efforts to obtain a suburban subscriber.

In 1984 the old entertainer's act — he has since died in a collision at the wheel of his Rolls-Royce — would no longer raise a titter.

France has long achieved the

targets set by Giscard in the seventh Economic Plan launched in 1975. Its telephone network functions superbly. And it is not without reason that the word "telematics" — the marriage of the computer and telecommunications — has been adopted internationally from the French original, "télématique".

The new rulers of France quickly appreciated that, by sacrificing technological progress, they would nip in the bud the hopes of founding an industry which would provide jobs and generate profitable export orders

However, the prospects for Teletel and the entire French telematics programme looked gloomy when President Mitterrand moved into the Elysée Palace in May 1981. During the election campaign Mitterrand had criticised Giscard for imposing Teletel on France against its citizens' will.

The Socialist leader promised that before any new moves were made the trade unions and consumers would be consulted about two major pilot schemes which were about to start up.

These were the equipment of households in Ile-de-France, an administrative department of Brittany, with the electronic telephone directory and, in the Paris

suburbs, the installation of videotex terminals in 2,300 homes. A plan to install 10,000 microcomputers in French schools was also frozen.

This period of uncertainty was short lived. It had obviously been a good political argument for the Socialists to accuse the outgoing Conservative government of the

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BRIGHT... "Nobody can afford to sit back in this business".

and publish a composite "electronic journal."

Total orders for Minitel are now close to 600,000 units. The bulk of these are being allocated to the electronic directory programme.

Orders for this year amount to 300,000 units which French Telecom has split between Matra (200,000) and Philips' French subsidiary TRT/Radiotechnique.

France has excellent reasons for applying videotex to improve its telephone directory enquiry system.

Costs of printing extra phone books to meet the requirements of fast increasing subscribers are no longer offset by advertising revenue.

With two million lines now being connected each year, the printed directories are quickly obsolete — hence heavy demands for directory assistance and a bigger financial burden on the network.

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So far 10,000 subscribers have been connected in Brittany, rising to 300,000 by the end of next year when a further 200,000 will also be connected to the Paris area, around Marseilles and in Picardy.

The Brittany directory's database covers 1,200,000 subscribers and can handle 120 requests for information simultaneously. Soon calls from 500 subscribers will be handled at any one time.

French Telecom and the industrial groups closely involved in developing Teletel are confident they can capture worldwide markets for their products. The first orders are already flooding in.

Brazil is at present the scene of the first full-scale community venture by a developing country to test Teletel.

The trial, which initially involves 1,500 homes and business offices in São Paulo, uses 1,000 television screens with 1,000

and 500 Minitel units supplied by Matra.

Thanks to an order last year for 560,000 terminals from Tymshare in the US, Matra is strongly established in the Teletel export market.

The French firm, now under State control, is supplying 50 editing terminals for the São Paulo videotex network.

France's Steria company, which makes the Videopac package already operating at Vélizy, supplies software for the São Paulo trial. Steria is also equipping Greece's Bank of Thessalia, Minnesota's First Bank System of Minneapolis and Italy in Milan with the same system.

The Brazilians have given responsibility for packet switching of data in São Paulo to the French SESA firm.

It was SESA which set up the French national network, Transpac. Now it is acing up all the big international orders for networks of this type. Customers include Australia, New Zealand and Luxembourg.

SESA is also to install Brazil's national network for the Embratel

With two million lines now being connected each year, the printed directories are quickly obsolete — hence heavy demands for directory assistance and a bigger financial burden on the network

Telecommunications Authority this year.

But in spite of these successes, the French are not resting on their laurels. Roy Bright, an Englishman who played a leading role in the promotion of Prestel, says: "Nobody can afford to sit back in this business."

Bright, now managing director of French Telecom's international marketing subsidiary Intelmatic, adds: "Teletel and Prestel are not alone. Canada is competing with its Teletel system, Japan with its Teletel system, and West Germany with Bildschirmtext."

"The stakes are high. Each country hopes to win a substantial share of a world market which could be worth hundreds of millions of pounds over the next few years. Thanks to the performance of Teletel, French videotex technology is well placed in this

ANGLO-FRENCH TRADE

The installed base is only one-sixth of Britain's, but there are signs of a breakthrough... Jack Gee reports

France — land of opportunity for UK computer manufacturers

FRANCE'S slowly developing demand for computers could offer golden opportunities to British manufacturers if they aim for the most promising slots of the market and organise their advertising and distribution intelligently.

Although the two countries' populations are almost equal — 56 million in Britain and 54 million in France — the computer has been tardy in making its impact on the French side of the Channel.

At the end of 1982 France's installed base, ranging from the mainframe to the micro, totalled only 183,000 compared with Britain's 1,155,000.

But signs that a breakthrough might be at hand in France are visible in a spectacular 363% growth in sales, which rose last year by 116,000 installations. In Britain sales of 585,000 represented a growth of 105%.

France has shown much less enthusiasm for the computer than its European neighbours. IBM, which expects to sell 500,000 of its Personal Computers this year, believes that it might place only 7,000 in France despite a massive and costly advertising campaign.

The reluctance of the French market to respond enthusiastically to the microcomputer can be explained in large measure by the absence of a domestic manufacturing base.

The only French manufacturer of any real significance is R2B, a subsidiary of Cii Honeywell Bull. In 1982 the 10,000 micros made by R2B accounted for over half of all micros produced in France.

But R2B's position on the French market was uncertain as the State-owned group prepared to absorb this offshoot into its office automation division. Another sign of the writing on the wall is R2B's decision to shut its American subsidiary.

Apart from R2B the other French micro makers are all small fry. Leonard is the runner up with only 2,500 machines last year, followed by Goulet with 2,000 and a handful including Syngem, Darley and Matra-Tandy which each produced 1,000 machines or less.

Thomson-CSF will start making Fortune's Micromega at a factory in Brittany within a few weeks, and hopes to push production up to 600 units a month by next year.

At between 70,000 francs (£7,000) and 170,000 francs (£17,000) according to its configuration, the Micromega looks expensive. But Thomson believes it will fit into a slot between costlier minis and the Apple and IBM personal computers.

Gordon Curran, a director of Intelligent Electronics Europe, a market research firm with offices in London and Paris, is confident that profitable pickings await British computer makers on the French market.

Curran says: "The British computer industry has excellent opportunities for exporting to France thanks to its strong domestic production and marketing base. However, until now none of our

firms has achieved the same success in France as at home. Their problem is the choice of the correct marketing strategy."

Last year Britain sold 953.8 million francs (£95 million) of computer products in France, according to the French Ministry for Foreign Trade. The French sold only 654.3 million francs (£65 million), leaving Britain with a favourable trade balance of 299.5 million francs (£30 million) in information technology.

Visible proof of the keen interest among the French in British products came from our Embassy in Paris. The Commercial Department reports that over several months last year computers were the subject of half the market advisory reports ordered by French businesses from the Embassy.

Prospects for penetrating the French market vary from one segment of the industry to another. In mainframes, where the French government conducts an unabashed policy of favouring State-controlled Cii-Honeywell Bull, ICL faces an uphill task in trying to extend its market share.



TURNER... "It would not be in France's interests to exclude foreign manufacturers."

David Turner, joint managing director of ICL France, says: "We now have 4.5% of computer sales in France. We are particularly strong in the North with 10%. But in Paris, where the government orders are placed, we get only 1%."

The ICL France chief admits that the State's preference for Cii-Honeywell Bull is a handicap. But he emphasises: "It would not be in France's interests to exclude foreign manufacturers. The French have to ensure that their own companies remain competitive. The long-term solution to France's balance of payments problem is exports. If they lose their competitive edge, they will endanger their overseas business."

Although still puny in France compared with those of IBM and Burroughs, ICL's market is begin-

ning to expand. After three years of relative stagnation, its orders grew by 47% in 1982. This year it expects a 23% rise.

ICL has no plans to manufacture in France. Last year it earned half its French revenue from maintaining and renting computers and providing software services.

ICL is also co-operating closely with Cii Honeywell Bull in efforts by European manufacturers to develop common standards and operating protocols.

Thanks to its firmly established position on the French private market, ICL is unlikely to suffer from the new austerity programme and appeals by President Mitterrand and his ministers to "buy French."

But British firms with an eye on the French market must remain alert for a change in the objectives of the Filière Electronique, the ambitious national plan to raise France's electronics and computer industries to the same rank as Japan's by 1986.

Jean-Pierre Chevenement, Minister for Research and Industry until the government reshuffle in March, urged across-the-board development for all segments of these industries. But now, with less cash available for investment, Mitterrand and the new Industry Minister, Laurent Fabius, might decide to concentrate on areas of production where the French are strongest, such as software and small terminals.

Britain is particularly well placed to exploit its experience in microcomputers for the hobbyist. Last year Sinclair captured 70% of the French market for family micros with its ZX81. This was well ahead of the Commodore Vic 20's market share and the 4% carved out by the Texas Instruments 99.

Sinclair did even better in terms of market share in France than in Britain where it took 40%.

Paying tribute to Sinclair's achievement, a British competitor said recently: "Sinclair has opened up the French market. I owe it to Sinclair's Zilog 80 that my own sales are now going well in France."

Rair, which is launching its personal computer in France simultaneously with other European markets, is well satisfied with the results of its Black Boxes since the opening of a French subsidiary in 1982. Rair has set itself a target of 25 million francs (£2.5 million) sales in France for 1983.

Hans Delange, general manager of Rair-France, says: "We have started well thanks to a big advertising effort. Turnover is now 500,000 francs (£50,000) a month. Sales which are currently running at 30 machines a month ought to rise to 50 by the autumn. We might even begin to assemble our machines in France soon."

Systime's small office in the Paris suburbs is not seeking to sell to all and sundry. But the British firm has found a profitable slot in the laboratory market, an area which, oddly enough, the



CURRAN... "Excellent opportunities for Britain."

French themselves are neglecting. Plessey Microsystems is another newcomer to France. Although it has been registering substantial orders on the French market for the past two years, it has only just opened a sales office at Trappes, near Paris. Marketing manager Norman Williams says: "We want to put our mouth where our money is."

Plessey has apparently taken a number of French Defence Ministry orders in joint ventures with Matra, Thomson-CSF and Electronique Serge Dassault.

Williams says: "Our equipment is being put to some particularly rugged uses."

British software firms enjoy a high reputation in France. But they will need to follow the example of Systime in seeking openings in specialised fields. Competition is tough in France where national software companies

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up the European league. Newcomers from across the Channel must be particularly painstaking with their market research and careful in their choice of distributor.

Curran of Intelligent Electronics says: "Too many sales chiefs fly over from London without bothering to study the size and potential of the market. They give their distribution to the first friendly Frenchman who wines and dines them at a smart restaurant."

Distribution of family computers is fraught with pitfalls in France. In contrast with chains like Curry and Dixon's which sell through more than 400 outlets in Britain, the biggest group of French shops selling computers is FNAC with only 15 retail points.

Based on a well organised mail order service, Sinclair has done exceptionally well in France. Its sales network is likely to improve with the start of manufacture at Timex-France's factory in Busancon. Sinclairs' arrival soon to be available from thousands of French tobacconists, newspaper shops and "les droguistes".

The shortage of retail outlets is probably the most daunting challenge for British firms hoping to renew in France the successes scored on their home ground and in other markets. But the absence of serious French competition in family computers, except for Thomson's new TO-7 (a top seller in the FNAC discount stores), is an invitation to British companies to move in.

However, Curran warns: "A local French distributor won't risk much money on advertising. The British firm has to take this in hand."

"The size of the potential market makes it worthwhile. And it is wise to design advertisements specifically for France rather than copy an English original."

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Too many sales chiefs fly over from London without bothering to study the size and potential of the market. They give their distribution to the first friendly Frenchman who wines and dines them at a smart restaurant

Possessed by the computer craze

Little Brother, John McNeil, Century Publishing, £7.95

IMAGINE a personal computer in a miniature chip containing an image processing circuit from a military electronics firm, and which runs the services of a KGB interrogator to design its software. The software is then sold to children who flock in their thousands on Saturday mornings to buy the latest games software from the manufacturer.

Children whose parents continue their computers in reaction to the new craze attempt suicide or end up killing their parents.

Little Brother is a story of possession. McNeil has chosen Salem, scene of the late 17th Century Witch Trials, as the setting for his story.

John McNeil, the main character of the story, is a child of security for the firm from which the image processing chip is stolen.



When his own son, who also owns one of these computers, begins to behave strangely, Sorenson puts two and two together and his investigations lead him to the CIA. During the course of these investigations, Sorenson observes

Handbook stimulates some deeper reading

The McGraw-Hill Computer Handbook, Edited by Harry Helms, New York: McGraw-Hill Book Company, 1983, \$79.50.

THE computer industry has really become impossibly large. So many specialties and sub-specialties now exist - CAD/CAM, printers, telecommunications, artificial intelligence, and so on - that it is impossible to keep up with every development. Moreover, no single field exists in a vacuum, and virtually every interesting area requires a knowledge of at least one other specialty.

Someone working in, say, CAD/CAM would do well to know at least the basics of a field like artificial intelligence; a person working in telecommunications does well to keep up with developments in chip technology or reliability.

The problem is twofold. First, publishing and retailing of computer books has burgeoned phenomenally; no doubt, computer books are almost as popular as diet or

cook books. Choosing from the vast number of books is no easy task.

Second, some topics in computers are not well represented on bookshelves: books on the ins and outs of printers may not be well represented on the shelves of one's neighbourhood bookmonger.

McGraw-Hill now has the answer to this quandary. The Computer Handbook is an encyclopaedic work covering the basics of the industry; the 30 chapter headings include computer structures, software and operating systems, time-sharing systems, languages, voice recognition, and much more.

At 992 pages this is not the sort of book readers will take on a business trip, or for their daily commuting. Nevertheless, the handbook contains a wealth of introductory information on a wide variety of topics.

The chapters are well written, and highly informative. An abbreviated glossary provides definitions of many technical terms in the text, although most of these

will presumably be familiar to Computer Weekly readers. Mercifully, the editors have included a 21-page index to the book's chapters.

There are some omissions. It seems incomprehensible that a handbook of computers could omit material on packet switching, for example, or on ergonomics, as this one does. In addition, most chapters are excerpts or adaptations of computer books previously published by McGraw-Hill.

Still, these quibbles should not deter interested readers from buying this work, either for their home libraries or their departments. Most chapters are short enough both to satisfy the appetite of the interested reader, and stimulate a desire for deeper reading, and the book should provide a handsome payback on the effort involved.

The McGraw-Hill Computer Handbook is available in the UK through McGraw-Hill Book Co. Howard Karten

A naive view of the office

Designing Secretaries, Enid Mumford, Manchester Business School, £6.

ENID MUMFORD, Professor of Organisational Behaviour at Manchester Business School, has documented an exercise in practical ETHICS (a pseudo-acronym for Effective Technical Human Design of Computer-based Systems). A number of secretaries at ICI's Central Management Services were invited to assist in the specification and purchase of a word processing system. Professor Mumford guided them, constituted as a "design committee" reporting to a "steering committee" of senior managers, through the early stages of questionnaire design and negotiation.

Assuming the enigmatic objectivity of a "facilitator", her role was to help them to develop their organisational potential to the point at which her own expertise was no longer required.

After some months and many meetings (the minutes of which are included) a word processor was acquired and a duty roster drawn up.

For all its impeccable commitment to worker participation, *Designing Secretaries* is curiously naive.

The issue of new office technology relates as much to matters of sex and class as to hardware and on these subjects the book is silent.

Word processors and VDUs cannot, in themselves, alter traditional patterns of authority and deference. Secretaries are likely to continue to find that "the men expect too much" while managers continue to regard them as "an extension of me".

The book's conflictless model of the office takes account of management suspicions but blithely assumes that they will inevitably be dispelled by informed argument. It fails to comment on any more fundamental division of interest.

The tripartite structure of the ETHICS method - diagnosis, objective setting, design - amounts to little more than a dressing up of common sense. More interesting is the task of the facilitator precisely because of its emphasis on those communication skills which elude formulation. The need to create trust without fostering dependence requires a command of interpersonal nuance which is not always maintained.

John Melmoth

Two good companions to French DP industry

Dictionnaire d'Informatique: Français-Anglais. Second edition, entirely revised. Michel Ginguay, Masson, 1981.

Dictionnaire d'Informatique, Bureautique, Telematique, Anglais-Français. Sixth Edition, revised. Masson, 1981. SEVERAL topical events, not least the recent French language restrictions on imports and the ever-expanding European multinational information technology initiatives, are making possession of a good English-French-English dictionary of computing terms increasingly essential.

Ginguay's two dictionaries, one English-French (236 pages) and the other French-English (188 pages), are excellent companions for all those interested in the French DP industry. In addition to the text, both also have long and useful lists of acronyms in each language and a list of punctuation and other symbols commonly used in computing.

Although the field is changing rapidly with a constant introduction of new words, both books, but especially the English-French dictionary, are remarkably comprehensive.

A comparison of the two languages reveals very little "franglais" in French computing terms, which makes them in many cases less snappy than their English equivalents. For example, word processor translates as "machine de traitement de texte". However, in some cases the reverse is true: RAM becomes "Mémoire vive" (live memory) and ROM becomes "Mémoire morte" (dead memory) - both of which are graphically appealing to this reviewer.

The French are also keener to acknowledge companies in definitions. Open network architecture becomes "architecture de réseau d'Olivetti" and Transdata becomes "architecture de réseau de Siemens".

The long list of acronyms (over 1,000 English ones, and about 160 French) is useful. Gaps were hard to find, although a noticeable omission was LAN (local area network). Both dictionaries are attractively formatted and easy to read, and will appeal not only to specialist members of the DP industry, but also to a broader base of those interested in French current affairs.

John Riley

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Data Protection Bill—would it have made a difference?

The Bill is dead, but the issues it raised are alive and well. Michael Wood looks at the effects of similar laws

THE Data Protection Bill got to the House of Commons, having passed all its stages in the Upper House. It seemed very likely to become law before the end of the summer, if the general election had not intervened.

The legislation was intended to comply with the Council of Europe Convention on data protection, which the government intended to ratify in due course.

Almost all users of computers and information technology would be affected by a new law. Other countries already have regulations, with varying impact on data processing and the individual citizen.

Three parties have an interest in data about individual people, called personally identifiable information. The individual concerned (the data subject) clearly has some interest in the data held about him or her. The person who holds the information (the data user) also has an interest, otherwise it would not be kept.

The fact that there is a third party is often overlooked, but society has an interest in personal information of all kinds.

The information might be needed for public health reasons, or to help in providing appropriate educational opportunity, or for many aspects of welfare.

Inevitably there will sometimes be a conflict between the interests of the three parties. This conflict is most clearly evident in police systems. Naturally the criminal

would prefer it if the police could not use information technology with files of personal information. On the other hand, law-abiding citizens want the police to catch the criminals. Conflict arises most often where the interests of society are at odds with those of a particular individual.

Data is only published about reasonably large groups. The in-

The kinds of information that people regard as sensitive vary from time to time and place to place. It is very much a matter of culture and background... People are more willing to reveal information about themselves when they perceive an advantage in doing so

formation about a particular group may be statistically significant if there might be an individual with very peculiar characteristics in it.

The kinds of information that people regard as sensitive vary from time to time and place to place. It is very much a matter of culture and background. The Lindop Committee noted in its report that people seemed very much more willing to reveal information about themselves when they perceived an advantage in doing so. Election addresses are a noteworthy example of this tendency.

Sweden has had a Data Act since 1974, and is a very open society.

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All Swedes have a personal number which they use as a means of identification. You see people's own number written up in their office, perhaps on the wall board. The number starts with a person's date of birth. It also has a town number, and a serial number. The numbers are used very openly, perhaps because there are some common surnames in Sweden. Erikson in various spellings occupies about half the phone book. The Swedes are not sensitive about their ages, unlike most British people.

On the other hand, the Swedes are particularly sensitive about nationality. Perhaps this is linked with their traditional neutrality. The Data Inspection Board only allows nationality to be held on personnel records as one of three classes, Swedish, Scandinavian (because there is a common labour market) or Other. You would not be allowed to keep British on such a file, even if it were true.

Many of our European partners do not regard a person's name and address as a sensitive item of information. They are genuinely puzzled by the outcry here about public registers of adults rather than like the UK Electoral Register, but complete. The one in Sweden is operated as a Parliamentary monopoly. Data users who need to use people's names and addresses get them from this public register.

The legislation in four European countries covers legal persons as well as individuals. So in Norway, Belgium, Luxembourg and Austria details about companies and other corporate bodies are protected, in much the same way as personal data. This means that most commercial systems would come within the scope of the law.

Another aspect is that in some countries, notably the Federal Republic of Germany, the law covers manual files as well as computer files. This has the merit that it concentrates attention on the kind of data and its uses, rather than the technical means used to store or process it.

About 30 countries now have some kind of regulation concerning personal information handling. Overseas experience can be a valuable indication of the way things might develop here.

The first noticeable impact has been a reduction in the kind and quantity of data held. Lots of doubtful data has been eliminated. For example, the credit reference bureaux in Sweden record only debts that have been proved against an individual in court, not those simply reported by traders.

Some files have been eliminated completely. The major impact has been felt in government systems. New techniques have been adopted to identify authorised users at terminals.

Most well-conducted commercial systems have been little affected. A striking feature is the change in attitudes. System designers think more about the data subject and his or her interests. They may have to justify their proposals to the Data Inspector.

There is a refreshing openness. One credit reference bureau routinely prints all references in duplicate. One copy goes to the trader "X" and concerns a citizen "A". The other copy is addressed to "A" and says, "X" enquired about you and this is what we told him. People know this is the way the system works, so they don't ask for their own details. They know they will get a copy when their record is accessed. It makes



"Oh dear! Taking work home again, are we, sir?"

for great economy in running the system.

Incidentally, overseas experience is that few individuals ever exercise their right to see their own records. Similar rights under the Consumer Credit Act are hardly exploited in the UK.

A feature of most legislation is a demand for adequate security measures. The system must be auditable. As a data user you need to be able to show who was allowed to access confidential data and when.

The UK legislation was fairly modest in its aims. The indications were that the application of the law was to be very gentle, certainly at first. The government's declared intention was to minimise the costs.

The key person in the new arrangements was a Registrar. Users of automatic systems holding personally identifiable data would have to register such systems. Registration implies compliance with data protection principles specified in the Bill. The Home Secretary said in the Commons that registration would be a simple process. It would involve paying a small fee, and answering perhaps six simple questions.

To recap the data protection principles, they were based on those laid down by the Younger Committee. In summary, they required that data is:

- obtained and processed fairly and lawfully;
 - used only for one or more specified and lawful declared purposes;
 - is accurate and kept up to date;
 - adequate, relevant and not excessive;
 - not kept longer than is necessary;
 - not disclosed or used in a manner incompatible with the specified purposes.
- The data subject is given new rights. The individual data subject is entitled:
- to access data that relates to him;
 - where appropriate to have data corrected or erased.

These principles were modified in the Bill. There were various exceptions to the right of access. For example police intelligence files would not be subject to access rights. Clearly such access would nullify their value. The data subject's right to have data corrected had to be exercised through the courts. An individual had the right to be informed if he or she was a data subject of a particular system.

Some interesting details have emerged. One of the most significant for users is that sole traders would be regarded as individuals. Details about them would be subject to the law. This implies that almost every sales ledger system might have come within its scope, and therefore needed to be registered.

The Bill identified three classes of personal information. First there was factual data. Second were matters of opinion. Both these classes came within the scope of data protection and subject access. The third kind of data was an indication of the intentions of the data user towards the data subject. This was excluded from the scope of the measure.

Only a handful of the many amendments proposed in the Lords were successful, and it is clear that government intended the measure to pass unscathed through the Commons as well.

Finally, the Bill imposed a security requirement on data users. It said: "Appropriate security measures shall be taken against unauthorised access to, or alteration, disclosure or destruction of, personal data and against accidental loss or destruction of personal data" (Schedule 1, Part I, 8.)

Most organisations would claim that they have adequate security measures. Apart from some financial and military systems very few systems have adequate audit trails. Few data users could demonstrate that they have complied with this security requirement at all times.

Michael Wood is with the NCC's Privacy and Security division.

Why telecomms networks may meet the dinosaur's fate

Too many have too little brain, too much muscle and must be restructured says one expert. Donald Kennett reports

MANY current telecommunications networks are dinosaurs with too little brain for the huge amount of muscle in them.

This was the view put to the Institution of Electrical Engineers' Networks 83 conference in Brighton by Ake Knutsson from the Swedish telecommunications manufacturer L. M. Ericsson. Knutsson said that if they were to avoid the same fate as the dinosaurs, networks would have to be restructured into an intelligent and non-hierarchical form.

Hierarchical networks were inherently inefficient in dealing with overloads, he said, so the network tended to collapse precisely when it was most needed. In a society that was becoming increasingly dependent on telecommunications this was unacceptable.

The time was now ripe for planning more flexible and resilient networks and a good starting point was to implement automated network management and adaptive routing systems. The microcomputer revolution had made this economically and technically possible, but the last remaining obstacle was conventional thinking among policy makers.

The major costs of the changes would lie in the control hardware,

in forming the new team to be responsible for the network as a whole and in the administrative consequences of running a more complex network.

Benefits would come from decreased vulnerability, increased efficiency, increased revenue and goodwill, and increased information to support the maintenance and planning functions.

Savings of 10% to 15% on design costs had been reported for a long distance network in the US and 7% on trunk circuit provision for a tandem network in a large city by implementing non-hierarchical routing, Knutsson said.

These opinions were echoed by Osamu Iimura of Nippon Telegraph and Telephone, whose paper described Japanese plans for supporting the information-intensive society of the future.

NTT was planning to reduce the number of levels in its exchange hierarchy from four to two, Iimura said. Total exchange costs were lower with fewer levels, because a smaller number of exchanges were involved, but transmission costs were lower in a hierarchical network because of the savings on trunk lines.

The two configurations were currently similar in overall cost,

but as traffic increased and transmission costs fell with the development of optical fibre systems, the balance would swing heavily in favour of the non-hierarchical network. Decentralising the transit switching operation (the upper layer) would also reduce its vulnerability.

The transition from the separate data, facsimile, voice and video networks that are either running or being installed now to the Integrated Services Digital Networks that telecommunications authorities everywhere are planning for the future is the subject of a study now being conducted by NTT.

Detailed decisions on the transition strategy are to be made on completion of the study, but broadly the strategy is to keep video communications services on a separate broadband network while facsimile and data transmission are integrated on to a new digital voice network.

This is partly because the data rates used by the broadband services, 1.544Mbps-per-second and 722Kbps, are incompatible with the ISDN speeds based on 64Kbps — the internationally accepted data rate for digitised speech transmission.

But the broadband services will

be integrated into a Phase II ISDN at a later stage. Digital exchanges for the transit network started going into service in December and are to be installed in increasing numbers from this year on. Digital subscriber exchanges are also going into production which are designed to use repeaterless optical fibre links to serve subscribers for at least 15km around — the area now covered by a toll exchange and a whole clutch of local exchanges.

A trunk network of monomode optical fibre that will operate at a data rate of 400Mbps is being installed from one end of the country to the other to link 30 cities by the end of next year. Short distance optical fibre trunk links operating at 100Mbps and 32Mbps started in 1981, superseding the coaxial cable based digital systems operating at up to 400Mbps, in use since 1977.

The facsimile network which began on a limited scale in Tokyo and Osaka in late 1981 is to be extended to other major cities by early next year and to all towns by the end of 1986. It is popular because of the number of characters in the Japanese language and is expected to spread from businesses into homes in the future.

The facsimile network can deliver messages to multiple addresses and can convert from one kind of transceiver to another.

In Phase II ISDN, subscriber terminals of various types will be linked via a terminal control unit through the subscriber exchange to transit exchanges for broadband, packet switched or circuit switched transmission, from there to communications processing centres for functions such as code or protocol conversion, or store and forward delivery of voice or picture messages and on to information processing centres for database access and other services provided independently of the network.

To test the operation of the ISDN and the kinds of new services it will support, NTT is building a trial network in Tokyo which will support 750 non-telephone terminals (data, facsimile and video) and 250 digital telephones, as well as 9,000 conventional analogue telephones, linking them to processing centres via optical fibre cables. The trial is due to start next year and is expected to become the driving force behind the development of new information services in Japan.

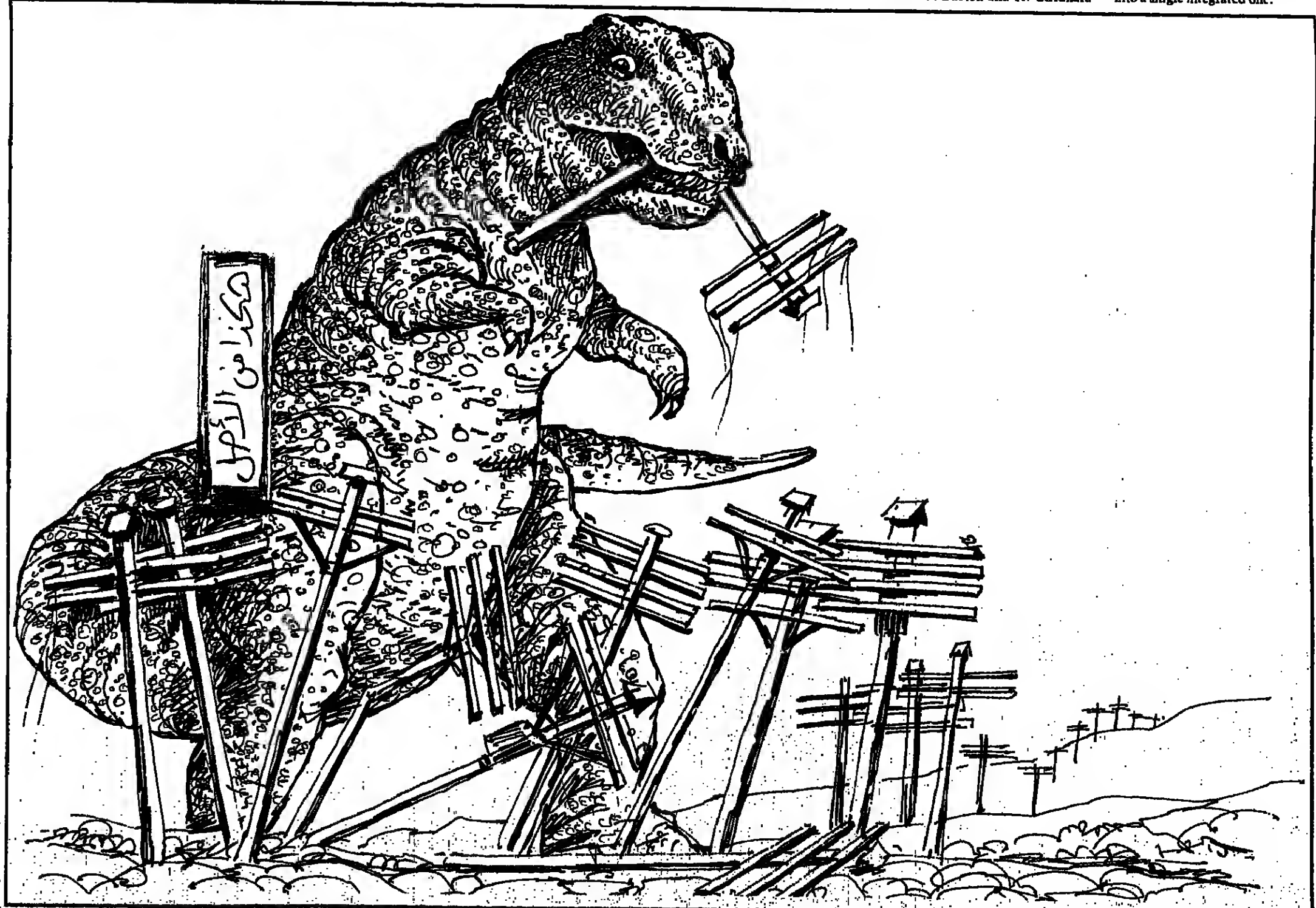
K. V. Burton and K. Girdhara-

gopal of Bell Northern Research in Canada described a three-phase evolution towards the ISDN. The goal of the first phase would be to enhance the capabilities of the central parts of the various existing networks by providing value-added services. These would generate more traffic and lower the cost of connections by making the networks more efficient.

Potential value-added services that Bell was considering included voice to text and text to voice conversion, voice and data teleconferencing, text messaging and videotelex.

The second phase would provide simultaneous access to voice, data and network control interfaces from the existing two-wire copper exchange lines. This would give the appearance of an ISDN to subscribers and information providers before the real ISDN was completed. It would be achieved first with hybrid analogue and digital techniques and later with digital multi-channel circuits, both as recommended by CCITT (the International Consultative Committee on Telegraphy and Telephony).

The third phase would be to evolve the separate core networks into a single integrated one.



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By the time he was thirty, Mark Weinberg had created Abbey Life. Today, as the founder of Hambro Life, he has been responsible for revolutionising life assurance in this country.



After a highly organised week in town, we have a completely unstructured Sunday. It's a day for sleeping late and messing around on our farm. I like to

TIMES

get a couple of sets of tennis and some riding in if I can but mostly I just potter around and take the opportunity to spend an hour or two with the children, of whom I don't see enough during the week.

Our farm is managed by a neighbouring farmer so I always have a chat with him in the morning discussing how things are going and I also spend some time with Edgar who looks after the vegetable garden and our wild ducks. He loves the country and has never lived more than a mile from his present home, so it's nice to have half an hour with him, seeing the countryside through his eyes.

But the day starts with the papers. We get up fairly late so one of the disadvantages of living in the country – not getting the papers delivered till 9.30 – doesn't really bother us. We're unlikely to be up by then, and we lie in bed reading them for about 45 minutes.

The beauty of Sunday is the chance to get heavily into the papers and catch up on what one missed in the week. On weekdays there's a certain amount of reading I have to get done each day and after that I read the papers more or less according to chance. But Sunday I can pay much more attention to them, reading the news and features in greater depth and also devoting time to the arts and leisure sections.

With The Sunday Times I start with page one and then turn straight to the business section – even on Sunday it's a bit of an obsession. Then I try to go from page two through to the centre spread fairly fast, picking out stories I particularly want to read before I get distracted. But the little news features

before the centre spread always seem to pull me in and thwart my attempt to get an overview. There's always a couple on science or medicine that I find especially interesting.

The thing I like about the centre spread is the way the main issue of the week is developed in different ways, partly in the leader, partly in the article on the opposing page and sometimes in another comment piece as well. It seems to pull it all together somehow.

We don't go out on a Sunday but we quite regularly have people round for lunch, which is seldom before 1.45 and often as late as 2.15. I usually manage to snatch another 15 minutes' reading time just before lunch.

One of our other interests on the farm is our wild ducks which live round a bit of water near the house. We've wired in the area against foxes and in the last couple of years I have been trying to introduce a wider variety of fowl. We've got about 25 types now and have succeeded in breeding from a number of them.

I tend to treat the main newspaper and the business section as a separate paper from the rest. I'll pick up the review and colour supplement after lunch or settle back with them in the late afternoon or evening. I often read the main piece in the review in a concentrated session in the evening.

I very much enjoy the supplement and think it contributes a lot to Sunday. I appreciate the quality of photography which is a great contrast to the nasty, flimsy feel of the traditional American colour supplement.

I must be an advertising manager's dream as I also have a soft spot for the ads and read the supplement as much for them as for the editorial. This makes me a menace as far as my secretary is concerned because I'm likely to come into the office on a Monday morning with three or

four coupons I've cut out and ask her to send off for the products.

On Sunday evening I start to change gear, worrying about the week ahead and thinking that if I don't organise for Monday morning I'll be in a mess.

There's really no chance that I'll have read everything I wanted to read in The Sunday Times so I keep it for the rest of the week – the trouble is that the next Sunday usually arrives before I've finished it.

In a recent survey by the New Business Research Consortium, several interesting facts emerged:

◆ The Sunday Times is read by more businessmen than any other newspaper.

◆ The Sunday Times is the only quality Sunday to have increased its businessmen's readership since 1980.

◆ The Sunday Times has market leadership in most of the important occupational areas, including: marketing, 43.5%; computing, 32.5%; finance and accounting, 38.5%.

◆ The Sunday Times has more readers in all the following categories: top income bracket, 51%; 2-car families, 36%; credit card ownership, 35%; value of shares £10,000+, 53%.

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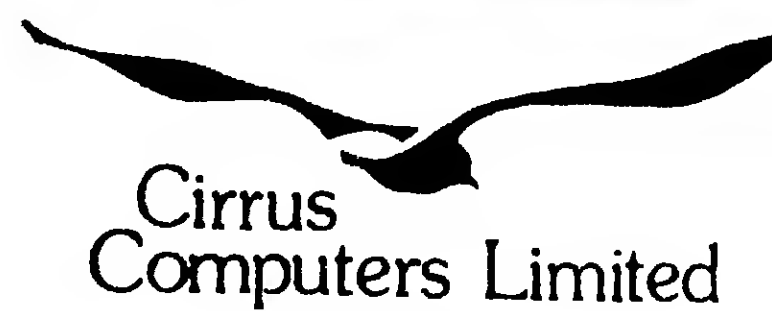
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(3888)

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(8668)

Senior Systems Designers/Consultants - up to £17,500 plus car

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Daily Telegraph 16th April, 1983

"Hambro Life set to beat home loan hitch."

The Times 16th April, 1983

"Hambro Life valuation - 19.5m surplus."

Financial Times 20th April, 1983

"Mark Weinberg, the man who shook up the British life insurance industry 20 years ago... is quietly plotting another revolution."

The Money Observer, February, 1983

When a company's as successful as Hambro Life, it's plain for all the world to see.

If you've only read our recruitment advertising over the last few months, you will already know some of the facts:

We're the U.K.'s largest unit-linked life assurance company, with assets of over £1.8 billion, and a market value that puts us in the top 70 companies in the U.K. A record achieved in little more than a decade!

But just lately, the Press has been taking a lot of interest in what the future holds for Hambro Life now that we've formed a major unit trust group, acquired Dunbar (a prestigious banking institution) and forged links with the insurance giant, Guardian Royal Exchange. On top of this, we've just launched two major new products, and are now poised to step beyond the insurance and pensions business into the financial services and expatriate markets.

Breathtaking, yes. But also impossible without the flexible integrated computer systems which are at the heart of our Administration.

This enables us to react swiftly to all market and business needs.

And with so much extra activity sweeping through the company - it means that we now have need for more top

systems professionals to join our already sizeable and formidable team:

In fact, no matter how successful you are in your present job, involvement in a future like this must attract you to Hambro Life.

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CONSULTANTS**
- up to £17,500 plus car

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SYSTEMS DESIGNERS
- up to £14,000 plus car

The job given to you would be determined by your ability, potential and the nature of your experience. Our systems team get firmly involved in a wide range of business activities. The current project list, for example, contains immediate product development work - including our recently launched life and mortgage products, our plans for the financial services and international markets, an on-line enquiry system for what is one of the largest life assurance databases in the industry, a micro-computer and software programme for Hambro Life's

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Qualities

You should be a graduate with experience in large scale systems and a record of successful implementations which reflect the high qualities required.

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Either complete and return the coupon to Bob Gill, Hambro Life Assurance plc, Hambro Life Centre, Station Road, Swindon, Wiltshire SN1 1EL. Or telephone Swindon (0793) 46700 (24 hour answer-phone).

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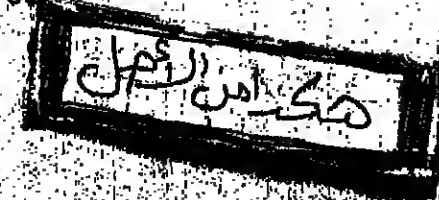
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Ideally candidates should have a degree or equivalent professional qualification and a minimum of 8 years' general computing experi-

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Knowledge of manufacturing systems is important together with experience in the use of computers in technical applications. Above all candidates must be able to demonstrate the leadership qualities which will ensure that senior management understand and exploit the benefits of the latest advances in computer technology.

Salary is negotiable and is unlikely to be a limiting factor; there is an attractive relocation scheme where appropriate and a large company benefit package.

In the first instance contact Bruce Crammond on 01-631 4184 or send a detailed CV to:

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Please write, or telephone for an application form to: Mrs. R. M. Mole, Personnel Officer, Leasco Software Limited, Reliance House, 150/152 Bath Road, Maidenhead, Berkshire SL6 4LD. Telephone: Maidenhead (0488) 233971.

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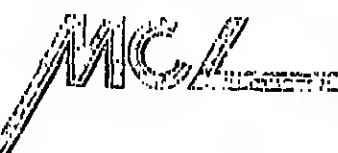
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Salaries' vests' review

Further details and application form obtained from the Principal, Herfordshire Technical College, Holly Lane, Hereford, Herefordshire, HR1 2YU. Forms should be returned within two weeks of the appearance of this advertisement.

(3724)

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PDP RSTS OP SURREY £7K
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Contact Anne-Marie on 01-836-8411 regarding the above requirements.

IBM 4300 SHR OP W. LONDON £8K
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Contact Stephen on 01-836-8411 regarding the above contracts.

(3724)

JOB OPPORTUNITIES IN TELECOMMS

Plenty of work - for all with the right skills

Margaret Spooner looks at prospects in an industry that has had a 'minor revolution'

A MINOR industrial revolution has occurred during the past decade - the telecommunications industry has moved away from its earlier electro-mechanical base to electronics.

With high speed digital switching bringing computers into telephone exchanges and the widespread use of microcomputers in communications the telecommunications industry has become wider in its scope, and its business now overlaps with two other areas: computers and radio/television.

A representative of TEMA, the Telecommunications Equipment Manufacturers' Association, says this has led to a vast increase in recruitment opportunities in the telecommunications industry. It now needs experts in software and hardware and people combining traditional electronics engineering skills with a knowledge of computing. And developments such as radiopaging and video conferences broaden the range to include radio and television skills too.

So for people with the necessary technical 'background' and suitable personal qualities future employment in the industry seems assured.

The major employers share similar concerns: demand for suitable recruits is fast outstripping supply; not enough graduates with the required blend of disciplines are coming out of universities; and experienced staff are also scarce.

The personnel manager of GEC Telecommunications explained the current situation: "With the technical changes brought about by more advanced products and by more advanced methods of manufacture there is a continuing reduction in production operators employed but an increasing requirement for technologists."

He added: "GEC Telecommunications is recruiting graduates in large numbers both for direct entry positions and for training. Difficulties are still experienced in recruiting engineers with experience. Development engineers, designers, test and commissioning engineers, systems analysts and software specialists come within this category."

It seems that telecommunications and computer companies are again taking on graduates in considerable numbers in this year's "milk round" (as the annual tour of universities and polytech-

nics by recruiting companies is known) after several years of rather patchy recruitment.

The major telecommunications companies all expect to obtain their full complement of new graduates but they face stiff competition from small companies which may specialise in only one area or product and, having a less defined salary structure, can lure graduates with high pay.

Against this the large companies hold out the attractions of stability and good working conditions in terms of equipment and opportunities.

Any potential recruit unwilling to move around the country would not be considered as mobility is essential for career development

The immediate prospect for graduate entrants varies according to the training method chosen by the employer.

Plessey, for example, sets a common starting date for new graduates and provides an intensive training course comprising lectures, management games, case studies etc, which are intended to give an understanding of how the company operates.

Details of the type of work recruits will do or where they will be located are not easy to obtain since large companies are unwilling to give any hint to competitors about products being developed or any part of their strategy. However a high proportion of jobs will be in the South-east because of the concentration of companies in this area. Others are located at regional

centres of the various firms.

The major point emphasised by British Telecom was the need for recruits who combine the classical telecommunications training (electronics engineering) with a good grasp of computing.

Don Halford, head of British Telecom's software standards and services division, said: "It is difficult to find the right blend of qualifications among the graduates at present coming out of universities. The computer scientists have no knowledge of computing."

He foresees an increasing need throughout the next two decades for this combination of skills.

To alleviate the problem, British Telecom, in conjunction with Aston and York Universities, has developed four-year degree courses in electronic systems engineering which begin at the two universities next year.

Currently BT provides internal training courses to give electronics engineers the necessary computer expertise for their posts and to equip computer scientists with the electronics needed for jobs in telecomms.

The number of graduates recruited during the "milk round" varies from year to



The Racal-Millicom cellular radio telephone - part of the "minor industrial revolution" in telecomms.

year but, said Halford, "British Telecom can absorb 60 to 80 a year without too much indigestion".

Like most large organisations it prefers to "grow its own men" so that they understand the organisation, but it is sometimes necessary to recruit experienced personnel.

Ted Hackett, head of undergraduate training, emphasised that any potential recruit unwilling to move around the country would not be considered as mobility is essential for career development. Management potential as well as technical ability is sought.

Telecommunications Engineer

To £8,000 Avon

Our Client, a major subsidiary of a multi-national Mining and Natural Resources Group, is in the process of developing a nationwide interactive network of Hewlett Packard 3000 minis, using CASE DCX equipment.

This has created a requirement for an additional person who, reporting to the Telecommunications Co-Ordinator, will assist in the planning, installation and day to day running of the Company's telecommunications facilities.

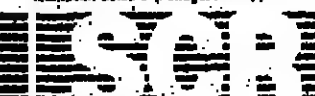
Our Client is seeking an ambitious Telecommunications Engineer with at least six months practical involvement in data communications, with experience of the isolation of problems, either personally, or by calling in the relevant Engineer.

This newly created position requires someone with a practical bias and the ability to generate positive relationships with users. This is an excellent opportunity for a young and ambitious Telecommunications Engineer, who enjoys variety and challenge and is keen to take advantage of the excellent career prospects available within this growing Organisation.

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Please telephone or write for further information and an application form to: Ian Craven, Computer Systems Manager, Mercury Communications Limited, Ninety Long Acre, London WC2E 9NP Tel: 01-836 2449.



(3876)

COMPUTER ENGINEERS RECRUITMENT FEATURE JUNE 9

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For further information please ring:
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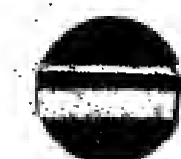
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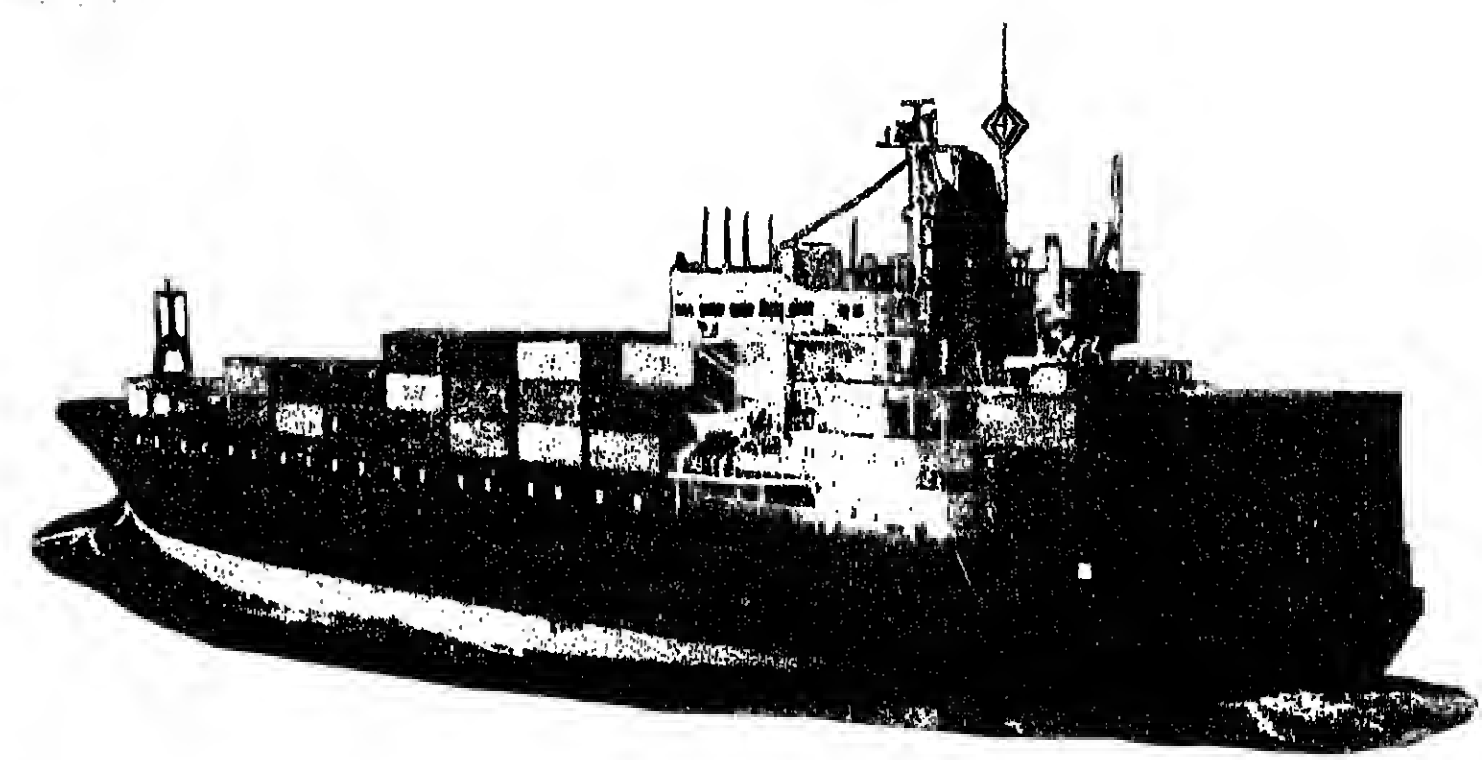
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ANALYST/PROGRAMMERS. The persons required must have proven experience and achievements in working with IBM mainframes and/or Honeywell Level 6/DPS6 equipment. Knowledge of the latest operating software and of database design would be of special interest.

As well as a proven technical background the client is seeking staff who have the ability and presence to represent the company customers.

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Please apply by telephone or writing to John Edwards.

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The salary is negotiable but not a limiting factor.

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Our client requires Consultants with in-depth knowledge of any of the following:-
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Consultant/Project Leader

South Coast to £12.5K + car
Experienced business analyst required by computer services company to control systems development for clients from feasibility to implementation. Candidates aged 30+ years, with degree or accountancy qualifications, should have strong IBM S/34 or S/38 experience. Attractive location. Excellent prospects. Re-location package. Ref. 538

APL Analyst/Programmers

Midlands £6-12K
Large manufacturing company seeks several Analysts and Programmers with recent experience of APL to develop a wide range of applications. Degree standard candidates are preferred with a minimum of 1 year's d.p. experience. Good benefits. Re-location assistance provided. Ref. 693

Senior Analyst

South Coast to £12.5K
Engineering company requires systems analyst to work on IBM S/34 to S/38 conversion and to implement MAAPICS systems on the new machine. Candidates must be experienced in RPG II and MAAPICS; knowledge of RPG III and/or Basic is desirable. Re-location assistance is available. Ref. 691

Write or telephone:

London West Computer Recruitment
Evergreen, Dauntsey, Chippenham,
Wiltshire SN15 4JA
Telephone: (0249) 891114

LWC

London West Computer Recruitment

Technical Sales Support

Berkshire £8.5-10.5K
Computer manufacturer requires several junior and senior support staff for pre- and post sales support activities. Candidates ideally will have worked with mini computers on scientific and/or commercial applications. Personality and communications ability are important. Attractive location. Same travel. Good prospects. Ref. 688

IBM Analyst/Programmers

Midlands to £10K
Several manufacturing companies require senior programmers and analysts/programmers with IBM mainframe experience. Cabol and knowledge of on-line database techniques. Installations include RJE sites and multi cpu configurations. Re-location assistance in all cases. Ref. 700

IBM Analyst/Programmers

South Coast to £9.5K
Manufacturing and financial organisations with IBM mainframes seek programmers and analysts/programmers with a minimum of 1 year's Cabol experience. Knowledge of CICS and D11 is advantageous. Attractive locations. Salaries according to experience. Re-location assistance. Ref. 701

Systems Analyst

Bucks to £10.5K
Financial services company seeks analyst with on-line mainframe database design experience. Degree qualification desirable but not essential. ICL knowledge an advantage. Minimum 3 years d.p. experience required including at least 2 years of analysis. Excellent benefits including low cost mortgage. Re-location package. Ref. 590

Real Time Project Leaders

West, South, Wales c.£15K
Major companies developing real time projects in telecommunications, process control, telemetry and industrial automation require experienced team/project leaders. Degrees in computer science/engineering are essential; low and high level real time language skills are required. Excellent prospects. Re-location assistance. Ref. 614

Real Time Programmers

Wilt, South £8-11.5K
Successful companies engaged in developing telecommunications systems require junior programmers. Real time experience preferred. Appropriate degrees essential. DEC and/or Intel knowledge an advantage. 2 years' experience of a low level or block structured high level language is required. Excellent prospects. Re-location assistance. Ref. 613

Design Engineers

South, West to £12K
Vacancies exist for hardware design engineers with small/medium companies engaged in the development of micro processor based products for medical systems, telemetry, and industrial and office automation systems. TI, 280 or Intel experience plus some programming ability preferred. Excellent opportunities. Re-location packages available. Ref. 698

Real Time Process Control

South Wales £11.5 to 13.5K
Major companies have vacancies for experienced real time software engineers of project leader and manager level. Computer science/electronics/engineering degrees essential together with knowledge of DEC, PDP or VAX and/or 280 or Intel micro processors. Good salaries. Re-location assistance. Ref. 692

(3714)

DALROTH

Saudi Arabia

JEDDAH — RIYADH — ABHA
Tax free salaries to £28,000
plus usual Middle East benefits

Our client, a major Computer Consultancy Group who has a number of facilities management contracts, development projects and also market hardware and software products, requires the following personnel.

FACILITIES MANAGEMENT PROJECTS

DOS/VSE SYSTEMS PROGRAMMER — ideally CICS & DL1
INFORMATION ANALYSTS — VM/CMS using and supporting a range of information centre products (ADRS, APL, PGF, DCF, STAIRS) or similar.

PRODUCT MARKETING GROUP

ADABAS SUPPORT ANALYST/ENGINEER — good experience of Software AG or ADABAS Ltd products.

HARDWARE MARKETING

SALESMAN — INTERGRAPH CAD/CAM system sales plus graphics experience essential
MAINTENANCE ENGINEER — MICROGRAPHICS digital and analogue.
GRAPHICS OPERATORS — senior and junior.

OIL INDUSTRY REFINERY & DISTRIBUTION DEVELOPMENT PROJECT

A TEAM of Project Managers, Project Co-ordinators and Auditors, Communications and Database specialists, Process Control and Project Control systems experts, together with Accountants, Legal Administrators, Analysts and Programmers is to be built up over the next few months.

The installation will be 4300 series running under DOS/VSE and using DATA-COM.

Relevant Specialist knowledge will be required in the following areas.

Oil Industry
Project Auditing and Co-ordination
Financial and Personnel Systems
Accounting and Legal Systems
Document retrieval/Library systems
Standards and Quality Assurance
Marketing and Planning systems
Forms design and Document management
Control/Legal Administration

Database Design
Systems Engineering
Warehousing and Inventory
M.I.S.
Performance Tuning
Communication Networks
Process Control
PERT Scheduling

For this project all appointments require a Degree or equivalent level Professional Qualifications

For further information please contact Jenny Dalrymple-Hay or Ian Murray West on 01-493 2947, 9am to 10pm, Monday to Friday, quoting Ref. 9974.

DALROTH & PARTNERS LTD, 4 HALF MOON STREET, LONDON W1

SYSTEMS ANALYST & PROGRAMMER Lake District

The Jobs

This is an opportunity to join a team currently involved in the development of major new manufacturing and retail systems. The Systems Department has an I.C.L. 2960 and System 10, a Hewlett Packard Laser Printer, plus a number of micro computers. Our systems are written in COBOL and FILETAB and use Database techniques.

SYSTEMS ANALYST — Circa £9,000 p.a.
You should have around 3 years' experience as a Systems Analyst, together with some programming experience. Exposure to Database techniques would be an advantage. You will be expected to play a significant part in the development of new systems.

PROGRAMMER — Circa £8,000 p.a.
You should have around 3 years' experience, primarily in COBOL and/or FILETAB. You will play a key role in the development and maintenance of a wide range of systems.

We offer an excellent contributory Personal Life Assurance Scheme. The package will include generous relocation expenses.

The Company

We manufacture 1/2 million pairs of high quality footwear per year and manage 250 Shops in the U.K. and Holland. We are an autonomous subsidiary of the C and J Clark Group, who have major manufacturing and retail companies in Europe, the U.S.A., South Africa and Australia. Prospects for promotion within the Company and Group are excellent.

Please write, or telephone, for an application form to:
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Personnel Manager
K Shoemakers Limited, Netherfield
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Telephone: (0539) 24343

K Shoes

HMC GLOBAL LTD
Specialising in Onboard Monitoring and Guidance Systems (HELM) and VESSEL Performance Analysis the Company is seeking

COMPUTER EXPERT

for Marine applications
Candidates will be expected to have a good honours degree in Mathematics or Computer Studies with at least two years' experience with computer applications in industry. Competitive salary and benefits are offered.

Write with detailed c.v. to:
HMC GLOBAL LTD,
BUCKINGHAM HOUSE
67 BUCKINGHAM STREET, LONDON WC2N 6BU

SENIOR SYSTEMS ANALYSTS/DESIGNERS LONDON & BERKS — £12,000-£16,000

A newly established operation catering for the needs of a software house require three Senior Systems Analysts/Designers with experience in the following areas:
IMS DB/DC • DLI • IDMS • OS/MVS • STRUCTURED ANALYSIS USING YOURDON TECHNIQUES • PROJECT MANAGEMENT • FULL ON-LINE PAYROLL/PERSONNEL AND ADMINISTRATIVE SYSTEMS • INVENTORY AND FINANCIAL SYSTEMS.

Overseas travel will be required from time to time which will be suitably recompensed.

Interested applicants should forward a detailed resume or contact: Richard White, Man. Technical Services Group, 334 Euston Road, London NW1 3BG. Tel: 01-368 2284.

Senior Operator ICL 2957

Jones Lang Wootton, a leading Firm of Chartered Surveyors and International Real Estate Consultants, are to install the newly released ICL 2957 System, with CAF8, in August 1983, in its West End Office. A senior operator is now required to augment existing staff.

Applicants should be educated to A level standard with 18 months proven practical experience on a medium-to-large ICL Mainframe, and have a knowledge of DME 2 and VME operating systems preferably under CME. Relevant experience within an on-line environment (hardware and software considerations) is also required. You should apply in addition to these technical attributes, you are self-motivated, can work, train and supervise others within a small team.

A realistic starting salary is offered with generous benefits in kind. Please apply with full curriculum vitae to: A.J. Bacchus, Esq., MBIM, AIFM, Personnel Manager, Jones Lang Wootton, Keir House, Telegraph Street, London EC2R 7JL.

Administration Officer
BANKING INSURANCE AND FINANCE UNION
Sheffield House, 17 Hillside, Wembley HA9 7NL
Closing date for receipt of applications 14 June 8th, 1983.

Jones Lang Wootton

Use technology to open doors for you.

In the commercial world our clients are recognised as being international leaders in their field of technology and continuing expansion has created an urgent need for engineers and programmers to assist in their ambitious plan to further develop their own real-time systems.

Software Manager — to £16k

This challenging new role will be offered to an enterprising and creative systems person currently in a similar project leading or management role but looking for further advancement.

MACRO-11 Real-Time Programmer/Analysts — to £12k

The majority of their systems development is written in MACRO 11 on DEC PDP 11's and experience of RTL2 or a similar block structure high level real-time language would be an advantage.

Hardware Development Engineers — to £11k

The successful applicants will have experience of designing and developing 8/16 bit microprocessor systems. Some software experience would be an advantage.

Whilst the applications for these systems are of a technical nature, you should have a commercial awareness and the ability to communicate easily with clients in either a pre or post sales capacity.

In such a fast growing environment, there is a healthy career path with good promotional prospects and according to your age and experience you could find yourself in a team leading role. Benefits offered include BUPA, pension and life insurance scheme and relocation expenses.

If you would like to find out more about these challenging opportunities, then contact Penny Stock at Computer People London on 01-836 8411 now or write to her at VLI House, 68 St. Martin's Lane, London WC2N 4JS, quoting Job Reference No. PS 12637.

Computer People London

SOFTWARE & SCIENTIFIC ENGINEERS

NEW MALDEN

£8,000 to £18,000

One of this country's leading systems houses, specialising in Advanced Defence Systems, have recently established a base in New Malden.

This new location, a few minutes from the A3 and New Malden station, opens up new and exciting career opportunities for qualified people living within commuting distance or wishing to move to the Surrey area.

The company is a market leader in Defence Consultancy, commanding large military projects from their studies stage through to Systems Engineering to Software Implementation.

Graduates with a minimum of two years' experience in Defence related Systems should apply.

Immediate requirements include:

- ★ Software Engineers with CORAL and VAX to work on a test rig simulator.
- ★ Hardware Engineer with MICRO Processor Systems building experience.
- ★ Trials analysis, two years' FORTRAN/DATA Handling experience.

The company offers many advantages to the successful candidates namely Professionalism, Training, Career Development and an excellent income package.

For further information please send a c.v. or telephone the advising consultant quoting the Ref number DLM 20/2.

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01-399 9183

Datamatics, Prepost, Surbiton, Surrey KT6 5BR

Suffolk County Council

Education Department
SENIOR ADMINISTRATIVE ASSISTANT
(Computer Technician) Post L270
AP: 57791-28325 (Pay band 1, 2, 3)

Applications are invited for this post within the Education Department's Headquarters in Ipswich. The successful applicant will be required to contribute to the increasing development of applications both for departmental administration and school based computer usage. The work will include the preparation of programme specifications, programming, selection and implementation of suitable packages, etc. The department has terminal links, which the postholder will supervise, to the Authority's ICL 2976 (VME/8) mainframes, and the schools network is being standardised on 'Research' machines. Generous removal/relocation expenses are available in appropriate cases. Application forms and further details are available from the County Education Officer, Grimwade Street, Ipswich IP4 1LJ. Please enclose a stamped addressed envelope. Closing date: 2nd June, 1983.

DE HAVILLAND COLLEGE

The Campus, Welwyn Garden City, Herts

DEPARTMENT OF COMPUTER STUDIES
(Based at Elstree Way, Borehamwood)

LECTURER II

required with experience of computer data processing preferably in micro and/or mini computers. Applicants with teaching experience and teacher training, with preferably a knowledge of two of the programming languages BASIC, PASCAL or COBOL. Salary scale: 1983: £11,622 per annum (under review) plus £248. Outer London 'Prize' Allowance. Assistance with relocation expenses in approved cases. Forms and further details from The Principal, de Havilland College, The Campus, Welwyn Garden City, Herts. Closing date: Friday 3 June.

BANKING INSURANCE AND FINANCE UNION DATA PROCESSING MANAGER

£12,000 P.A.

An ideal opportunity exists for a person with suitable experience to assume responsibility for an ICL ME28 installation.

A sophisticated on-line membership system is in operation and the successful candidate will assume responsibility for the management of computer operations, liaising with various user departments and designing and developing future systems.

The successful applicant must be able to demonstrate the ability to manage a computer operations environment and should have systems design and programming experience, preferably on ICL equipment. Additionally experience of on-line systems is a requirement.

Applications giving full details of age, qualifications and career state should be addressed to:

Administration Officer
BANKING INSURANCE AND FINANCE UNION
Sheffield House, 17 Hillside, Wembley HA9 7NL
Closing date for receipt of applications 14 June 8th, 1983.

19730

assisting our clients to fill. We would be pleased to talk to you regarding
 none one of our consultants to discuss your particular requirement and how

6470

First Floor, 35 Piccadilly, London. W1V 9PE
Telephone 01-439 8985

SYSTEMS AND PROGRAMMING

6 II OR RPG III CITY £9,500

International firm involved with insurance and finance, has recently appointed to its IBM System 38. They seek a bright young programmer with potential to develop their analysis and user liaison skills in an expanding user environment. Ideally you should have 18 months' + IBM experience preferably with some experience of RPG III, though training will be offered to a really keen RPG II programmer. This is a pure development job, with excellent career potential. REF: C2493

EWLETT PACKARD-COBOL To £11,000

A major financial and industrial organisation seeks an Analyst/Programmer to become part of their development team. You will play an integral part in user training, coding, design and system implementation. Minimum of 18 months HP3000 experience is needed, hopefully supplemented with a background which encompasses IMAGE, VIEW and MERY. The company offer an excellent package which includes a good salary, free lunches, and 23 days holiday. REF: A2025

ANALYST/PROGRAMMERS HANTS To £13,500

For excellent opportunities in the Hampshire countryside and coast for IT professionals. One position at Senior level requires five years' + IBM COBOL programming/analysis with knowledge of MVS/CICS/PL1 desirable, good JCL, structured techniques and supervisory skills, to lead a development team, the others at the lower level require two years' + IBM COBOL, with PL1, and ongoing experience useful, and the ability to develop your analysis skills. These are now positions offering career prospects, in-house education, and exciting development projects in financial and commercial fields. A full recruitment package is offered at all levels, in profit-sharing, BUPA, pension, and discounts. REF: C2491/2

EC-BASIC/FORTRAN SNEG

You can offer anything from 12 months' to 12 years' DEC PDP or VAX experience, under any operating system and using either BASIC I or FORTRAN. Any clients would like to meet you. You will become involved in the development of a number of projects ranging from finance to administration. From the offset you will have your responsibilities. They offer an excellent salary which will more than compensate with your experience and ability. If you would like to hear more about this City-based post, then please contact us for a free brochure. REF: C2491/2

SYSTEMS PROGRAMMERS SURREY To £13,000

A Surrey-based firm, a bureau and an insurance firm, seek Systems Programmers with two years' experience of either DOS/VSE, or MVS/PL1/CICS/VIATM to join their teams. Also a junior position available for an ASSEMBLER programmer with IBM MVS or DOS/VSE experience to join a Systems Programmer (18,000). Benefits include free life insurance, four weeks holiday, free health insurance, sports and social club. REF: C2414

COBOL SURREY To £9,000

A commercial organisation based in Surrey are currently seeking competent Programmers with two years' experience working with VME/B or P/2800 and COBOL. You will be working on exciting new development projects on their ICL 2958, and will be utilising SOL, TPMS and LIMS, in which full training will be offered. REF: D2456

ANALYST/PROGRAMMER CITY £11,500

International commercial company retaining IBM 4341 equipment require additional Analyst/Programmer with two years' MVS or OS/VS1 and COBOL experience. You will play a leading role within a small team, and will be responsible for working with new packages, system design, and implementation. Ability to deal with users, advantages, and excellent prospects are offered along with generous company benefits. REF: C2493

COBOL MIDDLESEX £8,000

International organisation currently holding an ICL 2980 running under OCEG II with 1800 COBOL and FILETAG, and currently seeking a programmer to help support university work from ICL in Harewell, Hants. You should have a minimum of 12 months' experience to COBOL, FILETAG and GIL. Initially you will be responsible for working solely on ICL programs but in 12 months time you will retain an IBM 4341 equipment, and a fast-moving development team. REF: D2276

SYSTEMS ANALYST MIDDLESEX £12,000 neg.

A prestigious software house involved in multi-million insurance claims seeks a dynamic analyst with a programming background, the ability to liaise effectively and professionally with their clients, and develop and implement new systems. If you are seeking exposure to IBM System 38, this is the opportunity for you. REF: C2033

PROGROUGHS - SENIOR SNEG

Multiple applicants with a solid BURSROUGHS background and with either an leading or Systems Analysts experience are sought by this Berkshire marketing concern. You will have the time and tact to be able to communicate with Management and Users besides overseeing a team of staff. The company house B1955 on the DMS 11. Career prospects are very average and almost all of the work is development based. An excellent remuneration package is offered. REF: A2263

ANALYST/PROGRAMMER MIDDLESEX To £11,000

A commercial company housing IBM 4341 running under DOS/VSE and PL1 and IBM Assembler are currently seeking a competent Analyst/Programmer with a minimum of 18 months' PL1 programming experience and 18 months' exposure to systems work. You will be maintaining mainframe programs as well as becoming involved with major on-line development projects, maintaining database facilities. Excellent company benefits including pension scheme, life assurance and LVs. REF: D1982

IBM COBOL £8,000 +

A financial organisation based on East London/Essex borders are seeking a competent programmer with at least 12 months experience on a 4300 mainframe. Exposure to PL1 and CICS would be advantageous. You will be working on major new projects, on-line program development and new applications. They offer excellent working conditions and company benefits including subsidised restaurant. REF: G1013

SYSTEMS ANALYST BERKS £11,000

Leading career move for candidates with a minimum of two years' systems analysis experience to take up a key role within the major commercial and production systems. They are an ICL ME29 installation and will be working with a great many TP systems. Company benefits include pension scheme, subsidised restaurant, and life assurance. REF: D2470

RPG III PROGRAMMER N. LONDON To £10,000

An excellent opportunity for an RPG II or III programmer to join the IBM System 38. If you can offer two years' IBM System 34 experience and would like to be retained on System 38, this could be the ideal career move. The successful applicant will join a small enthusiastic development team, embarking on exciting new projects. Please call for further details of this outstanding opportunity. REF: C2395

PROJECT LEADER £13,000

Exciting career move for high calibre DP professional with a couple of years' analysis experience to take up a key role within this international organisation. IBM System 38/RPG III experience is essential along with the ability to organise and supervise staff. If you believe you have the necessary skills for this highly successful organisation, call now for further details. REF: C2393

ANY COBOL - RETRAIN £9,000

My clients a leading, London-based banking organisation, seeks bright and versatile COBOL programmers to retrain on their Tandem machine. The majority of work is involved in the development of entirely new systems, in banking, administration and general financial applications. You should have a minimum of 12 months' COBOL and be quick to learn. Career prospects are solid for the right person and the salary is excellent. REF: A2055

MVS TEAM LEADER CITY £12,000

One of the City's most established and respected firms involved in accounting, insurance and shipping requires a Team Leader with five years' IBM MVS COBOL experience, and preferably on-line and IMS experience. You will be involved with a variety of projects, expected to supervise when necessary and develop your technical skills using the latest IBM hardware and software. Also position available for Senior Programmer with around three years' IBM MVS COBOL. Full benefits package. REF: C2421

JUNIOR PROGRAMMERS SURREY/SUSSEX £6,000-£7,000

Surrey insurance firm, and Sussex-based financial bank seek junior programmers aged 18-25 with 6-12 months IBM COBOL experience gained in a commercial company that should level. You will be offered the chance to develop your structured programming techniques, get involved with design, coding and testing, and after about six months full training in CICS will be provided. If you need a change, or would like formal training, and benefits including sports and social club, life insurance, subsidised restaurant, four weeks holiday, then call now for more information. REF: C2459

ICL ME29 CITY To £12,000

A major insurance company, currently in the process of moving the DP department to the City, is currently seeking ME29 Programmers and Analyst/Programmers. Programmers should have a good understanding of the ME29, TIME and TPS. Analyst/Programmers must have worked from system design to implementation. Any exposure to PRINTWELL is an advantage for these positions but not essential as full training will be provided. Call now for further details or write enclosing full CV. REF: D2351/2

SENIOR PROGRAMMER/IBM £10,000

International Bank in Central London require an IBM COBOL programmer with two years' experience. At least 18 months' experience is required. You will join a small IT department, develop new packages, and maintain existing Banking packages. The role includes on-call out of hours. REF: G1213

UNIVAC-COBOL £9,000 + Mort. Subs.

Do you have a minimum of 12 months' UNIVAC 1100 COBOL experience? Would you like to become involved in development work on a number of varied projects ranging from finance to administration? If so, our Hants-based clients would like to meet you. They offer a fast-paced working environment, time you can develop your career whilst receiving training on a distance, on-line to packages, and JSP, full education will be paid, a mortgage subsidy is offered, and there are bonuses throughout the year. REF: A1950

RPG III ANALYST/PROGRAMMER £12,000

Major financial group has an immediate requirement for an analyst/programmer to take charge of their insurance/banking systems, dealing with people, systems, and on-call packages, pension admin, systems. You should have a minimum of three years' programming and analysis, with some experience of IBM System 38/RPG III and strong team skills. A financial background would be an asset, and the ability to accept heavy responsibilities. Non-contributory pension, profit sharing, plus usual benefits. REF: C2495

ANALYST/PROGRAMMER CITY £12,500

This prestigious financial organisation housing IBM 4300 mainframes running under DOS/VSE and VSAM are seeking to appoint an Analyst/Programmer with good user contact. Initially you will be involved with on-line banking and upgrading a new system and thereafter working on new projects from system design through to implementation. Benefits include four weeks holiday, LVs, STI and pension scheme. REF: C2393

SYSTEMS ANALYST SURREY £11,500

Major insurance company based in Surrey housing ICL 2980 has an urgent requirement for a Systems Analyst to join a busy, hard-working team. You will have four years' Data Processing experience with at least two years' recent systems experience within either insurance, pensions, accounts or finance. Applications are invited from candidates with any background. Benefits include mortgage subsidy, life insurance and pension scheme. REF: D1739

HONEYWELL-COBOL To £11,500

A nationwide electronics organisation, based on the Berkshire/Middlesex borders are currently seeking an Analyst/Programmer. Honeywell 64 experience is essential and INS/IDS would be an asset. It is a challenge that you seek, this company with its many development projects, could give you just that. They have an enviable promotion path for ambitious individuals. REF: A2371

★ COMPUTER ENGINEERS ★

GREATER LONDON

★ £12,000 p.a. plus 2% Car plus Benefits ★

We are one of the leading manufacturers of IBM Compatible Computer Equipment in the world. Our considerable success is based upon the injection of millions of dollars for research investment coupled with novel marketing techniques and a much envied service policy.

To maintain this outstanding record we now seek several ambitious customer engineers to cover London and the Home Counties. Successful candidates aged 24 to 36, qualified to C & G/ITEC/HNC, will possess at least 18 months' digital electronics experience.

The benefits include a five-figure salary, executive car and free medical insurance. These positions will lead to more senior appointments. For more information and immediate interview contact our Recruitment Consultant Howard Naquet, B.Sc., on

01-837 0781 (9.30 a.m. to 6 p.m.)
01-794 2878 (evgs. and weekends)

ATA ENGINEERING RECRUITMENT

209 Great Portland Street, W.1
(Out-of-hours answering service)

ata COMPUTER RECRUITMENT (0771)

SALES/MARKETING

SOFTWARE SERVICES

£20,000-£25,000 tax free

Plus

Possibility of earning more in commission

A leading Saudi Arabian software house based in Jeddah requires a Senior Representative to market HP and IBM software and computer services. Candidates with a proven sales track record, sound commercial applications experience and the ability to develop and present complete sales proposals should forward a detailed resume or contact Richard White, Mulla Technical Services Group, 334 Euston Road, London NW1 3EG. Tel: 01-386 2284. (0680)

Freelance

Analyst Programmer

EXPRESS under VM

Long interesting assignment

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Link Associates Limited

24a High Street, Chesham, Bucks. (0494) 784922

link (0681)

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Tandon International, the European arm of the highly successful Tandon Corporation of America, is rapidly expanding and urgently needs an experienced sales executive to operate from the Reading base. Sales area covers UK and Western Europe, leading to computer manufacturers. GOOD SALARY + COMMISSION COMPANY CAR

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Reading, Berks RG61 1AZ

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London Borough of Haringey

Haringey Information Technology Centre

The London Borough of Haringey wishes to appoint staff to its newly established 50-place ITEC. The main training activities of the ITEC will be in computing; electronics and office practice (with emphasis on electronic office). In addition, it is intended to develop open access to its facilities (for business, schools and the community) as well as to develop saleable products and services of its own.

We are seeking to appoint:

COMPUTING INSTRUCTOR

and/or

ELECTRONICS INSTRUCTOR

(Salary: Burnham Lecturer Grade 1, £6,284-£10,206 p.a. inclusive of London weighting), to complete our 10 person training team.

Starting salaries above the minimum may be paid according to qualifications and experience. These posts are permanent appointments and N.C.C. conditions of service for APT&O staff will operate.

Applications are invited from candidates with appropriate qualifications and/or experience in computing (particularly Pascal and microprocessor assembly level programming and/or systems and electronics (particularly digital or microprocessor based product development and engineering) respectively.

Teaching or training experience would be an advantage.

For further details and application form (a.s.p. please) from Education Officer (Further Education), 48-52 Station Road, Wood Green, London N22 4TY.

Closing date: Within fourteen days of appearance of advertisement.

Haringey - Progress with humanity

Haringey is an equal opportunity employer (0719)

SYSTEMS AND PROGRAMMING

CONTRACTS

DATABASE ADMINISTRATOR DL/1 or IMS - London

CICS, DL/1 SYSTEMS PROGRAMMERS - London

SENIOR MVS SYSTEMS PROGRAMMERS - London

VME 2900, IDMS, TPMS, COBOL CONSULTANT - London

TANDEM, GUARDIAN, COBOL PROGRAMMER - London

DG MV6000, ADS/VS, TPMS, INFOS, COBOL - London

IBM OS/MFT or MVS, PL/1 PROGRAMMER - Liverpool

DATA GENERAL, RDOS, BUSINESS BASIC - S. Coast

ICL 2900, VME/B, TPMS, IDMS, SYS PROGS - London

IBM DOS/VSE, RPG II - North West England

USA - ATLANTA & FLORIDA

4 month contracts

COBOL, IMS PROGRAMMER

IMS D/B WITH MSS

COBOL, SHADOW 2 PROGRAMMERS

PERMANENT

PROGRAMMERS

This major international bank is currently looking for additional young COBOL/RPG II

programmers to strengthen the existing team. You will work on twin IBM 4341's running

VM/SP and MVS in both batch and on-line systems. Previous experience of banking or

insurance systems is essential for those wanting to take immediate advantage of the

excellent benefits package. Ref: B372/CW

to £10,000 + benefits

Continuous expansion and forward orders looking to virtually double turnover means that

this specialist service organisation now requires an experienced Analyst/Programmer.

Three years BASIC under RSTS/E and a strong personality are required for you to be

totally responsible for a development programme covering selection and installation of

DEC hardware; new software and network products. Ref: B334/CW

West London neg £12,000

Initial salary

£8,144 TAX FREE

(equiv. to £11,634.28 p.a.)

This international trading organisation is looking for a programmer with good ICL experience.

Initially you will be responsible for writing add-ons and amendments to existing

programmes and after a period of familiarisation, will be expected to develop new

programmes as required by users. Previous experience of Renga Cobol, Filatab and Info-

Basic preferred. Ref: B388/CW

to £12,000

A major mainframe and mini user this national company is looking for an IBM orientated

systems analyst. Based in Middlesex you will be part of a team supporting a variety of

users in finance, marketing and distribution areas. Ideally you will be an experienced

programmer with at least three years in analysis. Ref: B342/CW

to £10,500 + car

A major manufacturer requires a young graduate with at least 18 months' experience of

Cobol 74 and Fortran. You will be providing on-site and remote support to clients on

installations, patches, dump-analyses, etc. A clean driving licence is an essential as the

ability to communicate. Full product training will be given. Ref: B355/CW

South Wales Neg. salaries

A rapidly expanding micro-computer manufacturer currently has vacancies for experienced

technical DP staff at its development centre. Programmers should have had at least 18

months' experience in either 6809 or 6808 Assembler in an applications environment.

Technical Authors should be experienced in writing both user and training manuals.

IBM ANALYST/PROGRAMMERS West London £13,500

We urgently require people with four to five years' experience in an IBM on-line environment.

Candidates should have either PL/1 or COBOL as the major language and must have a

held responsible positions with large project teams. Future growth will offer excellent

opportunities for the right people to pursue long-term careers with this international

company.

The modern offices, that are easily accessible with ample car parking facilities, offer

excellent working conditions and company benefits provide the right incentives for pro-

active candidates. Ref: 267

IBM SYSTEMS PROGRAMMERS Saudi Arabia

A software house urgently requires experienced DOS/VSE, CICS people to join their

permanent staff. The first assignment will be in Saudi Arabia and subsequent posts could

be in Europe. Ideal candidates would be single people who enjoy hard work, travel and

want to retire early. You will be paid a UK based salary with related allowances for the

country to be visited. Ref: 370

Please contact DAVID or KEITH at KPG or on 01-747 0968 or 01-399 8163 during the evenings

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WORDPLEX, a leading manufacturer of micro based

Word Processing and Office automation equipment, is

seeking to expand its software development team.

Vacancies exist for designers and programmers at all

levels to

TELECOMMUNICATIONS BUSINESS SYSTEMS

SOFTWARE ENGINEERS WILTSHIRE

£9,500-£11,500

Situated in a beautiful part of the West Country our client is a highly successful and expanding division of a major international telecoms company specialising in the design, development, manufacture and marketing of advanced telecommunications and electronic business equipment.

Engineers educated to degree standard, with at least two years' post graduate experience are required. Knowledge of CORAL or other block structured languages is essential. In addition, familiarity with the use of CPM, Intel Development Systems or applications concerned with man machine interfaces would be advantageous.

Successful candidates will be offered a 4½-day week, 25 days annual leave, staff restaurant, P.P.P. at group rates, discount on company products, social and sports club, relocation assistance if necessary to an attractive housing area. Ref: GMF 20/1

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Datamatics, Freeport, Surbiton, Surrey KT6 5BR

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Our clients are a market leader in their own particular field with a healthy turnover and solid commitment to the Data Processing facility.

Due to continuing development plans, particularly for the Manufacturing Systems areas, they require two further members of their Applications Development Team.

The current configuration consists of an HP 3000/44 with planned upgrade and utilises IMAGE QUERY VIEW and QUIZ together with FORTRAN and COBOL. A network of some 30 local and remote terminals is in operation.

Candidates are expected to be flexible and self-motivated with the potential to take on more senior roles quickly. Fortran and a manufacturing background are desirable.

In addition to the competitive salary, ample scope for progression is offered and cheap housing is available in the Peterborough area.

Contact either office

(3723)



Targa Computer Recruitment

8 Liverpool Street, London EC2A 3TH Telephone: 01-525 5041 Telex: 25511
Morpeth House, 25-26 St James Street, Birmingham B5 7AS Telephone: 01-222 5045 Telex: 334327

your appointments register

Programmers

NCR/IBM/COBOL to £15K
Insurance - Banking London - H. Counties - N. Eng.

COBOL/PL1/OS/CICS/IMS to £13K
Commercial H. Counties - Midlands - Manchester

ICL/ON-LINE EXP to £12K
COBOL Surrey

HONEYWELL to £12K
Systems Programming experience Middlesex

DATA GENERAL ECLIPSE to £11K
Cobol Leicester/Lessex

IBM/RPG2 to £12K
Financial/Insurance Home Counties

IBM to £16K
System exp. Essex

BASIC to £11K
Mini Computers London

IBM/UNIVAC/COBOL to £12K
On-line/Database Surrey

NCR 8200 to £14K
Financial SW LONDON

Analyst/Progs

BURROUGHS/COBOL to £14K
Commercial Surrey

IBM 34/38 to £15K
London/Home Counties/North

MICRON MICROS to £16K
Manufacturing/Production Control Surrey

IBM/COBOL to £12K
Scotland

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APPLICATIONS ENGINEER to £15K
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SERVICE ENGINEER to £20K
DEC/VARIOUS MINIS Middle East

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Disk Drive Technology Sheffield

SOFTWARE TECHNICAL AUTHOR to £15K
Honeywell Bull Level 84/DPS 7 Paris

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Systems/DEC Beds/Manchester

ENGINEERS to £15K
Torch Micro/Networking London

Systems Analysts

IBM/ICL to £12K
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Real time - Modelling Men - Essex - South West

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Meepca/Rpg Sussex

ICL/ME29 to £16K
Commercial Design Berks.

IBM SYSTEM 34/38 MAAPICS to £13K
Sussex

Software Engineers

CORAL/PASCAL/MASCOT/C to £13K
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COMMS/TELECOMS/MOD to £14K
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(2741)

Sales & Marketing Manager

Central London & Home Counties

£25K on target + car

Our client is one of the pioneers in the development of the microcomputer market in the UK, marketing packaged systems based on well known 8 & 16 bit micro's and minicomputers. Over the past five years a range of business software packages have been successfully installed within a wide variety of small and large users. The company has substantial expertise in developing and maintaining software for new business systems and following the recent introduction of a new and exciting range of micro's they are looking to expand their user base yet further.

Applications are invited from experienced sales and marketing professionals to join the executive management team in order to determine the company's marketing policy and to carry it through to a successful conclusion. The emphasis will be on a 'total involvement' approach and in the early stages it is impor-

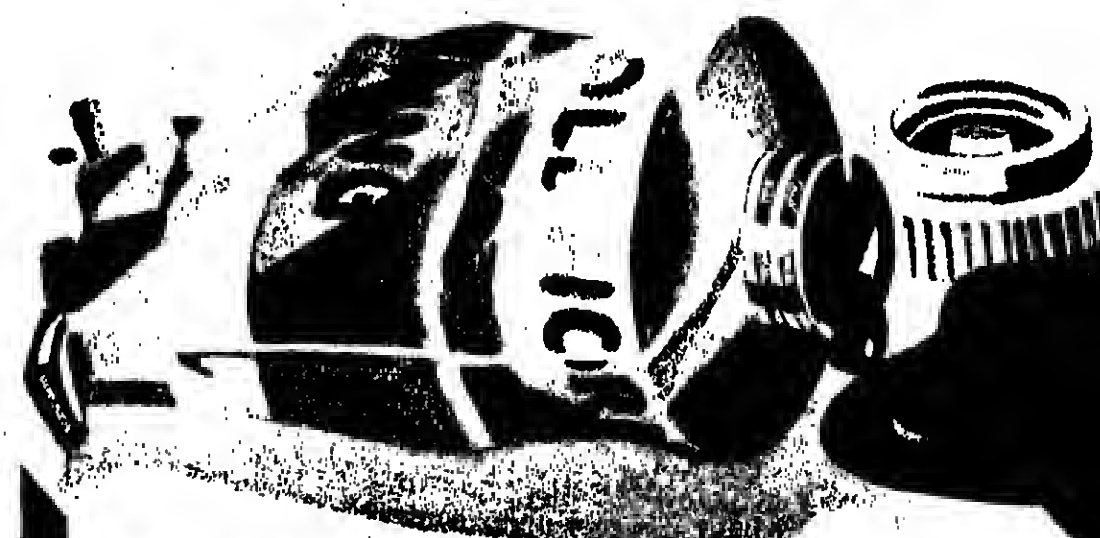
tant to make a contribution through incremental business.

Candidates should have an established track record in sales of micro's, mini's or business systems, complemented by a sound knowledge of commercial applications. In addition the ability to implement creative marketing policies will be a significant and determining factor.

The remuneration package includes a high basic salary, a negotiable initial guarantee and a generous commission scheme and it is expected that the successful candidate will become involved in an equity partnership within the first two years.

In the first instance contact Chris Denington on 01-631 4184 or write to him at:

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LET'S MOVE INTO
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PUBLISHING!

Langton Electronic Publishing Systems is an established but fast expanding systems house specialising in information management. As a stable and profitable organisation they cover areas such as text and graphics, demand printing, viewdata, on-line retrieval systems, optical and video discs and computer assisted retrieval and delivery systems. With a sound investment in the future they have a continuing research and development programme ensuring their product lead in the international markets.

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Programmer to £10,000
Analyst/Programmer to £12,000

These opportunities are for individuals to develop products in electronic publishing systems.

These products are portable across machines and support micro publishing and other media. IBM FORTRAN experience is essential together with IBM VM. If you have knowledge of IBM ASSEMBLER and experience on DEC VAX this would be advantageous.

On-line Viewdata Product Development
Programmer to £10,000

This opening is within a new development to build a private Viewdata system in an IBM CICS environment. You will have a background in IBM ASSEMBLER and a knowledge of DOS will be an asset. This is a first class opportunity to be trained in CICS and gain valuable experience for your career development.

If you would like to be associated with this fast moving organisation or alternatively seek more detailed information then telephone in strictest confidence Miles Richards on 01-938 1804 (24 hours).

Information Processing People

20 Kensington Church Street, London W8 4EP. Telephone: 01-938 1804 Telex: 22661

LANGTON

Systems Development and Support

Programmer to £10,000
Analyst/Programmer to £12,000

The Analyst/Programmer vacancy is to develop and support publishing software for the travel and tourist industries.

The essential requirement for this post is IBM VM experience. Training will be offered in ICL 2900 VME/B thereby giving exposure to a variety of equipment.

The successful applicant for the programming position will be involved in the development of abstract publishing systems and a DEC VAX FORTRAN background will be required.

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Weybridge, Surrey

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We urgently need experienced analyst/programmers to work on the development of these systems on the latest multi-user hard-disk microcomputers and local area networks.

If you would enjoy the challenge of a very varied job, involving all aspects of systems development plus customer training and after sales support, then please telephone or write to the Managing Director:



Kewill Systems Limited
Clive House
Queens Road
Weybridge
Surrey KT13 9XB
Tel: 0932-52046

(17741)

Ferranti Cetec Graphics Ltd

With the rapidly growing mechanical engineering market for CAD/CAM systems, CAMX developed and developed by Ferranti Cetec, is one of the most technically advanced systems available. CAMX operates 2D design and drafting, 3D solid modelling, finite element mesh generation, numerical control and engineering data management functions, linked together to form a comprehensive CAD system. It operates on the ICL VAX range of computers.

With an expanding market and state of the art CAD/CAM technology, a number of talented software development and support staff are now required to work in project teams addressing CAD/CAM applications.

A good Computer Science degree or equivalent experience is the likely background for candidates although exposure to interactive graphics, data structures, development and support of very large programs or engineering applications would be a distinct advantage.

In addition, we are also looking for software staff with experience of CAD software for electrical/electronic schematic drawing and printed

SOFTWARE DEVELOPMENT AND SUPPORT



with



current layout. Knowledge of the application of level 1 and 2 software is essential in this area. Most of the work is in the form of small amounts of VAX assembly code, running under VMS.

By joining Ferranti Cetec's software development group candidates are afforded real opportunities to extend their software skills. Salaries will fully reflect the candidates' value in the marketplace and form part of a comprehensive benefits package. In addition relocation expenses will be provided to an area where both private and rented housing abound and which offers the cultural and social facilities of Scotland's capital city. Local confidential day time and evening interviews can be arranged.

For further information and an application form, please Ernest Bennett, or write to him with full details at: Ferranti Cetec Graphics Limited, Bell Square, Brucefield Industrial Estate, Livingston, West Lothian EH54 9BY. Telephone: Livingston 411583.

Further, there is the frustration of giving up all those hard won prospective accounts and starting again with some unfamiliar product, company, territory, etc.

However, when a salesperson makes a voluntary or compulsory decision to go elsewhere, then money is certainly a significant part of the equation. It is also the salesperson is vulnerable to the "on-target earnings" trap and the potential employer can lose a good candidate because the truth does not compare favourably with someone else's illusion.

The operative word is achievable. Can the task that has been set actually be completed? Is the product good enough in terms of competitive price and performance? Is there actually a market for it? Has the territory concerned been outworked, neglected or has it been pillaged by the previous incumbent?

The latter is obviously very important, but it is insufficient to leave the qualification of the sales target to such broad comparison. More detail is essential. The first test is to discover how the sales target for the territory concerned is actually calculated. You would be surprised how many processes can be within many companies.

It is merely the national target divided by the number of people in the salesforce? Best avoid that one. It is important to ensure that any sales target is customised to the territory concerned, accounting for its unique problems and opportunities and the implications of the inevitable "learning curve" that any new employee must experience.

To have the same target as other established salespeople would be a nonsense. Another method of checking a target is to break it down into the number of

sales calls per day and the amount of prospecting that can be expected to achieve the stated objectives.

What is the typical unit value of a sale? How many units need to be sold in a year in order to achieve quota? How many "hot prospects" (as opposed to suspects) need to be generated in order to produce the number of sales required? How many sales calls and/or demonstrations does this imply? How much cold prospecting in terms of telephone work, letter writing, etc. is likely to be taken up by travelling around the designated territory? How much time is likely to be taken up by travelling around the designated territory? How much time will be needed for administration and sales meetings?

If the result of these calculations is an apparent demand for a 10-day-week, then there is obviously need for reconsideration as far as the sales target is concerned.

The other day I was with a client who complained bitterly about the loss of an excellent candidate to one of his competitors. He thought the remuneration package offered by his company was very reasonable. It was based on realistic objectives and provided total earnings above average for the industry.

The territory was a good one and the company's product was excellent. Yet the potential recruit went to work for a competitor, simply because he could earn £5,000 a year more on achievement of quota.

However, it transpired that the sales target set by the competitor was almost twice as big as the one related to the territory our client wished to men.

Further, if the candidate had been able to achieve with our client, the total sales required by the competitor, he would actually have earned £10,000 above quota earnings.

Maybe the candidate decided against our client for reasons other than financial implications, but it is almost certain he fell into the "on-target earnings" trap, simply by not working out what could be earned as an employee of any of the companies concerned on achievement of sales target.

A good way of doing this is to draw up a matrix with the value of each total sales target along one axis and the method of payment proposed by each company along the other.

You could be surprised which company is the better payer to the final analysis. Alan Williams

THIS table, which should be read downwards in four columns, displays a simple system for identifying all six weights. Each slanted stroke denotes that the scale has tipped, while each horizontal stroke indicates an equal weight result. Capital letters confirm "heavy".

a/B a/B a-b a-b
c/D c-d b-c b/c
e/F d/E c/D d-e

Another method of checking a target is to break it down into the number of

SALES BIT Don't ever be lured into the on-target trap

HAVING dwelt on recruitment from the employer's point of view, I will now deal with an aspect of this process with the welfare of the potential recruit in mind. The subject refers to the implications of that phrase beloved by all sales recruitment agencies, "on-target earnings".

Salespeople change jobs for a variety of reasons - broadening of experience in terms of product, market or job function; escape from unsatisfactory employment in company, products or management terms; avoidance of a bad relationship; increase of status or income; and so on.

In reality, few salespeople move simply for higher rewards. They may move because failure or extreme difficulty of sales success (there is a difference!) is having a negative impact on earnings, but not to earn a few thousand pounds more on 100% performance than they are earning at present.

What's the point? At least they know the reality of their present job, that the sales objectives and potential earnings are achievable, whereas there are no absolute guarantees with a new employer.

Furthermore, there is the frustration of giving up all those hard won prospective accounts and starting again with some unfamiliar product, company, territory, etc.

However, when a salesperson makes a voluntary or compulsory decision to go elsewhere, then money is certainly a significant part of the equation. It is also the salesperson is vulnerable to the "on-target earnings" trap and the potential employer can lose a good candidate because the truth does not compare favourably with someone else's illusion.

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COMPUTER SYSTEMS ENGINEERS

Studio Capital Projects Department

Two vacancies exist in the Computer Systems Section of BBC Studio Capital Projects Department.

Computer Systems Section is responsible for the analysis, design and implementation of software controlled systems for use in a broadcast environment. This includes audio and video routing, digital signal manipulation and teletext generation together with the conventional engineering and environmental aspects of business computer installations.

The successful applicants, male or female, would assist initially in this work under the guidance of more experienced engineers, but would be expected after two or three years to take full responsibility for smaller projects.

Applicants must possess a degree or equivalent qualifications in engineering or computer science, and/or be a corporate member of a relevant Chartered Institution. They should have at least one year's experience in the implementation of mini or micro computer systems, and preferably be conversant with the principles and practice of broadcast engineering.

Personal qualities are important and candidates must possess the powers of fast, drive and initiative and must be capable of clear expression, both verbally and in writing.

The salary is on a scale rising to £11,682 with entry normally between £9,211 and £9,963 (review in process) and includes London weighting.

The appointment will be in Central London provisionally, but the permanent base will be at the White City in West London from mid to late summer 1983. Candidates must be prepared to work at sites throughout the United Kingdom from time to time.

Application forms may be obtained from Engineering Recruitment Officer, BBC, Broadcasting House, London, W1A 1AA, quoting reference number 83.E4060/CW.

For further information telephone Paul Jarrell, Head of Computer Systems Section, S.C.P.D. on 01-576 7041.



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(1715)

DP Operations Manager

£10,000

South London

A major manufacturing company based in South London seeks an enterprising DP Operations Manager for its expanding data-processing centre.

This is an exceptional opportunity for a man or woman with senior level main frame operations experience to move into management in a challenging and dynamic sector using the ICL ME29.

The successful candidate will head a team of 10 and be responsible for staff training.

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4-5 Grosvenor Place
London SW1X 7SS



Executive Selection

(1777)

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HARDWARE DESIGN ENGINEERS

£85K to £13K

We offer a rare opportunity to live in Oxford and work with a team of experienced systems designers, developing our next generation of computer and instrumentation products.

Our client very successful microcomputer family includes a state-of-the-art network system and new developments will make use of 16-bit processors and gate-array technology. Our products are designed to maintain our reputation for high standards of quality and reliability.

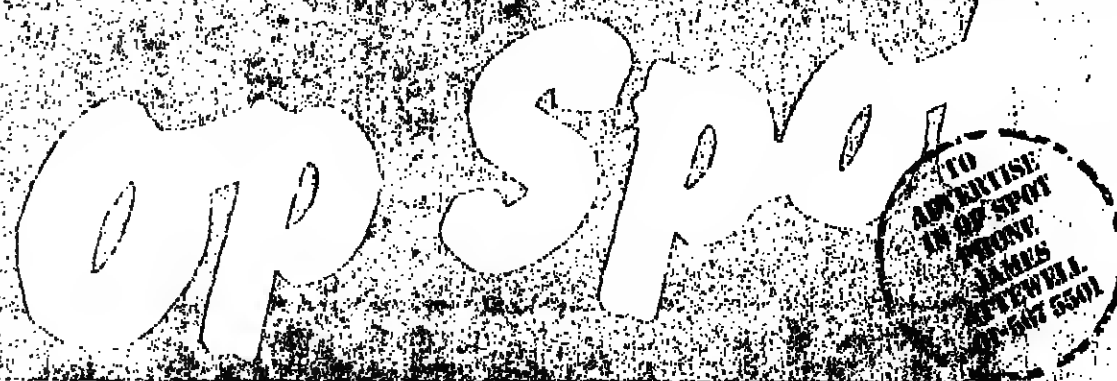
Engineers contribute to development projects from concept through to production handover. Projects are normally tackled by small teams, providing maximum involvement and opportunities for responsibility at project leader level.

If you are interested in this vacancy please contact Denise Howells on Oxford (0865) 726136 or write for an application form, quoting ref: HD/CW5

RESEARCH MACHINES

MICROCOMPUTER SYSTEMS

RESEARCH MACHINES LTD, Mill Street, Oxford OX2 0BW, Tel: (0865) 726136



SENIOR OPERATOR

WEST MIDDLESEX

£9,000 inc.
shift allowance

Our client forms part of the information technology group of one of the most successful manufacturing organisations in the country. Employing over 500 staff, they provide a comprehensive range of bureau services to industry, government and commerce throughout the UK.

Based in West Middlesex the installation consists of an IBM 3081 and an Amdehl V8 running under MVS utilising CICS and IMS. In addition the company also uses VTAM and TSO.

A vacancy now exists for a computer operator with a minimum of three years' experience. Detailed knowledge of MVS is essential.

The company operates a four shift system with eight hour shifts Monday to Friday and twelve hour shifts at weekends.

In addition to excellent salaries and a comprehensive benefits package our client offers an opportunity to develop a stable career in a thriving department.

JA3201

OPERATOR

CITY

circa £6,500
+ shift allowance

A leading independent organisation based in the city has established a prominent position both in the UK and overseas. To support increases in trading and still maintain a high standard of service essential to its users demands the use of advanced computer technology.

Their substantial investment in hardware consists of three IBM 4341s running under DOS/VSE and VM/CMS utilising CICS. The programming languages are Cobol and Assembler.

Candidates should have a minimum of two years' experience gained in a multi-IBM installation. In depth knowledge of DOS/VSE, VM/CMS and CICS is essential as is the ability to work in a large team environment.

Company benefits are first-class and include a mortgage subsidy, non-contributory pension, interest free season ticket loans, cheap personal loans, subsidised lunches, + LV's and relocation assistance in approved cases.

JA3802

RECRUITMENT CONSULTANT

WEST LONDON

£ excellent

DP Recruitment Services Limited is a leading international consultancy with a commitment to providing quality executive search, recruitment and advertising services. Our continually growing client base includes a wide range of blue chip companies utilising the latest computer technology.

To keep pace with continued growth and increasing demand for our services an additional consultant is now required to join the established and successful permanent recruitment division.

The person we are seeking will have a recruitment agency background or will currently be working within computer operations and possess the desire to develop their career within a highly rewarding industry. Most important, will be the ability to communicate effectively at all levels in a stimulating but demanding environment.

For an initial discussion in strictest confidence contact our managing consultant - Peter Kennell or write to us at the address below.

DP Recruitment Services Limited, 100, The Quadrant, London W1A 1AA

OPERATORS

CENTRAL LONDON

circa £8,000 inc.
shift allowance

As part of an established shipping organisation, our client has a global network of subsidiary and associate companies in over 30 countries. At the centre of this sophisticated organisation is one of the UK's largest and most impressive data processing facilities. At its London headquarters several multi-million pound projects are under way. These will maintain the company's predominant position into the next decade.

Vacancies now exist for Operators with a minimum of one year's experience gained in a large installation utilising MVS. The software configuration also consists of CICS, VM/SP, DBMS and VTAM. A working knowledge of any of these would be an advantage.

The positions involve continuous shiftwork seven days a week. To retain the company offers competitive salaries and a benefits package which includes a subsidised restaurant, non-contributory pension scheme and interest free season ticket loans.

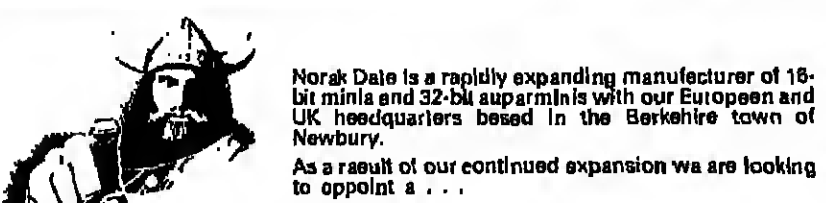
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The work involves careful analysis of the markets and correctly assessing trends and new openings. Being responsible for a market segment involves steering the company's marketing efforts towards the selected goals and guiding R & D and sales departments along the agreed lines. This means exercising sound judgement and persuading people to work on the areas selected. It means taking responsibility for success in these areas. Clearly it carries with it membership of the corporate Product Committee for technical and scientific products.

The Marketing Executive must be ready in the identification and pursuit of successful long-term and short-term goals. It is a job which carries strategic corporate responsibility.

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Please telephone Peter Bonne or Erik Skott on Newbury (0635) 35544 or if you prefer, write enclosing a c.v. to Norsk Data Ltd., Strawberry Hill House, Strawberry Hill, Bath Road, Newbury, Berks RG13 1NG. Telephone Newbury (0635) 35544, Telex 49815.

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